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**National Highway
Traffic Safety
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National Center for
Statistics and Analysis

Washington, D.C.
20590

Fatal Accident Reporting System 1980

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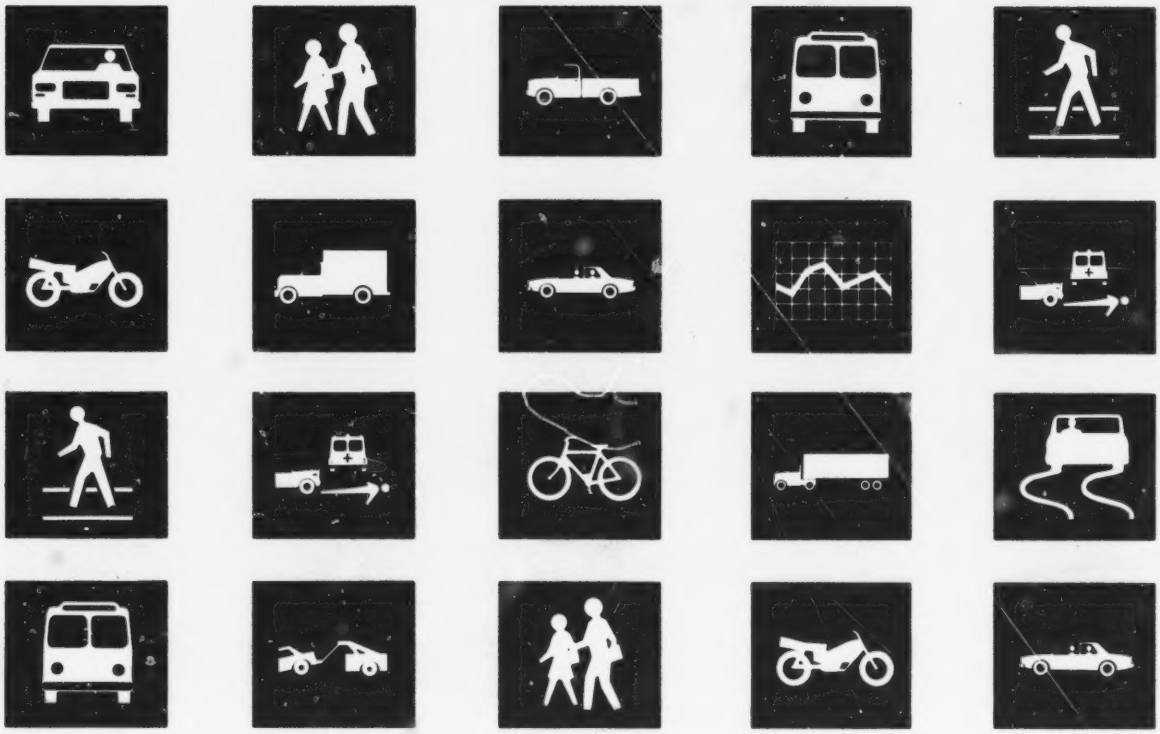
Traffic Fatal Accident and Fatality Data Collected in FARS for the Year 1980



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Fatal Accident Reporting System 1980

An Overview of U.S. Traffic Fatal Accident and Fatality Data Collected in FARS for the Year 1980

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Foreword

The U.S. Department of Transportation has been charged by Congress with the task of achieving a reduction in traffic accidents and their resulting deaths and injuries. The National Highway Traffic Safety Administration (NHTSA) is the departmental agency that formulates and administers safety programs designed to meet that goal. To evaluate existing and proposed highway and motor vehicle safety standards, identify problem areas, establish better safety systems, and generate improved standards and remedial measures, a strong analytical foundation is required.

One component of this foundation is the Fatal Accident Reporting System (FARS), operated and maintained by the NHTSA's National Center for Statistics and Analysis (NCSA). This report is the annual publication which provides a descriptive analysis of much of the data contained in the FARS data files.

FARS is a computerized file containing data on all fatal traffic accidents occurring each year within the 50 States, the District of Columbia, and Puerto Rico. A FARS accident must involve a motor vehicle moving on a roadway customarily open to the public and result in the death of a person (occupant of a vehicle or a nonoccupant) within 30 days of the accident. Other definitions used in FARS are listed in the Glossary.

Unless otherwise noted, all data in this report are taken from the FARS file for the years of 1975 to 1980 as of May 1, 1981. As of that time the 1980 file was 99 percent complete.

Data in the FARS file are acquired in the following manner. The NHTSA has a contract with an agency in each State government for the purpose of data acquisition. The contracts are managed by personnel located in the ten NHTSA Regional offices. These persons are known as the Regional Contract Technical Managers.

The specific employee(s) in the State agency assigned the task of gathering, translating and transmitting the data is called a FARS Analyst. The number of analysts in each State varies according to the number of fatal accidents occurring in the State.

Data concerning fatal motor vehicle traffic accidents are gathered from the State's own source documents and translated appropriately to codes on standard FARS forms. The analysts are responsible for obtaining all the documents needed to complete the FARS forms. The data sources may include the following:

- Police Accident Report
- State Vehicle Registration Files
- State Driver Licensing Files
- State Highway Department Files
- Vital Statistics Documents
- Death Certificates
- Coroners/Medical Examiners Reports
- Hospital Medical Reports
- Emergency Medical Services Reports

Each analyst enters data via a local terminal directly into NHTSA's computerized central data file. Data can only be entered by this method. Data are automatically checked on-line when entered for range and consistency.

Range checks insure that the codes submitted are valid. For example, a code of "4" for the element "Sex" would be rejected by the system since "1," "2," and "9" are the only valid codes ("1" being the code for "Male," "2" for "Female," and "9" for "Unknown").

Consistency checks insure that no inconsistent data are entered. For example, if an analyst codes 11:00 am as the time of the accident and "dusk" as the light condition, both element values would be rejected, as they are inconsistent.

Errors are displayed on the analyst's terminal as the data are entered enabling the analyst to make corrections immediately.

Quality control is a vital system feature. The checks just described are a major part of the overall quality control program. Other types of data checking are timeliness, completeness, and accuracy.

Timeliness is monitored by the Washington, D.C., FARS staff and the ten Regional Contract Technical Managers. Among other actions, the number of fatalities submitted by each State is updated every week and reviewed to assure timely reporting. Similarly, there are several programs

that monitor and improve the completeness and accuracy of the data continually.

The system contains descriptions, in a standard format, of each fatal accident reported. The format is designed to allow for approximately 90 different data elements to be coded so as to characterize various attributes of the accident, vehicles, and persons involved. The specific data elements are modified slightly each year to conform to changing user needs, vehicle designs, and highway safety emphasis areas. All data elements are reported on three forms:

The Accident Level Form contains characteristics such as the time and location of the accident, the first harmful event, whether it is a hit and run accident, whether a school bus was involved, the number of vehicles and persons involved, and weather conditions.

The Vehicle/Driver Level Form contains data on each accident involved vehicle and driver. Specific data include the vehicle type and role in the accident, initial and principal impact points, the most harmful event, the driving record, license status, etc.

The Person Level Form contains data on each person involved in the accident such as age and sex, person type (driver, passenger, nonmotorist, or unknown), alcohol involvement, injury severity, etc.

Forms used for 1980 are in Appendix A.

The National Center for Statistics and Analysis within NHTSA as part of its responsibility for operating FARS, responds to over 3,000 requests for information and sends out nearly 60 computer tapes containing FARS data every year. Besides analysis needs internal to the Agency, requests are received from sources such as Congress, other federal agencies, State and local governments, research organizations, private citizens and the media.

The data are available for every year that FARS has been in operation, since 1975. Users can access the data in three ways:

(a) Obtain the file on computer tape from the Center enabling users to process the data on their own computer systems. The only cost involved is that of the replacement tape.

(b) Request specific data from the Center. There is no charge for the request, but the usual time frame for responding to these inquiries is approximately two weeks. This time frame is somewhat dependent upon the nature and complexity of the request.

(c) Obtain an account with the Center's computer contractor, enabling users to access the data using simple, user-oriented language whenever necessary. Costs include computer time charges.

The data collected under FARS does not include any personal identifying information such as names, addresses, or social security numbers. Thus, any data made available to the public fully conforms with Privacy Act laws.

This report presents a wide spectrum of data in many different combinations. The tables and figures, numerous as they may be, illustrate only a small fraction of the usages of the data and only hint at the depth of analysis that can be performed using FARS data. One of the aims of this report is to present data. It is not intended to be an analytical presentation. Statements relative to importance or significance are based on the data rather than as a result of statistical analyses.

It is necessary for the reader to be aware of four things before reviewing this report. First, percentages shown have, for the most part, been rounded off to the nearest 1/10 of 1 percent. As a result, totals of these figures may not be exactly 100 percent. Many figures and tables present percentages. The base number upon which the percentages are computed is either explained on the figure or indicated by a "100 percent" adjacent to the base number in the tables.

Second, most tables and figures include a number in parenthesis in their upper, right-hand corner. This number is the population of the primary subject of the figure or table. The primary subject will usually be total fatalities, total fatal accidents, or some subset of these two populations. Subset populations, when used the first time, are defined in the accompanying text.

Third, as stated above, data in FARS is obtained from existing State records. These records vary in content and detail from State to State. Also, availability of certain FARS data elements vary among jurisdictions. Because of these variations, it is not always possible for a State Analyst to uniquely identify an attribute of a data element. In this event, the Analyst uses the code "Unknown" for the particular data element. "Unknown" data is presented in this report in the interest of providing complete and unbiased information.

Finally, this report contains very little exposure or normalized data. Exposure data is the reflection of the number of opportunities that existed for some event to take place. For example, it is interesting to know the number of fatalities in motor vehicle accidents but it is more informative to know the number of fatalities relative to the number of vehicle miles driven by all vehicles. Normalized data is similar in that it is usually an expression of a rate. However, normalization typically is applied to several numbers drawn from the same population. These numbers are normalized by dividing each one by a common denominator such as the total population. For example, it is difficult to compare the number of passenger cars involved in fatal accidents to the number of light trucks involved in fatal accidents. But, if both numbers are divided by the total number of vehicles involved in fatal accidents the rates are easier to compare. Contrasting this to exposure data using the same example, exposure rates could be obtained by dividing the passenger car number by the number of passenger cars registered and the light truck number by the number of light trucks registered. Thus, both normalized data and exposure rates would be obtained. Without carefully applying these data transformation techniques, it cannot always be determined what level of significance can be attached to large or small numbers and large or small differences.

To conform to the practice of other national statistics systems, the fatal accidents that occurred in Puerto Rico are not included in any U.S. totals. Chapter IX of this report is devoted to Puerto Rico.

For additional information concerning this 1980 FARS annual report, write to the National Center for Statistics and Analysis, National Highway Traffic Safety Administration, NRD-33, 400 Seventh Street, S.W., Washington, D.C. 20590, or telephone (202) 472-7040 or 426-4844.

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I. Highlights 1980

This publication focuses on the fatal accidents and fatalities reported in the Fatal Accident Reporting System (FARS) data file for 1980.

Information on fatal accidents occurring in 1975 through 1979 is included for comparison purposes where appropriate. A summary of the more important statistics is given below.

- In 1980 FARS reported 45,271 fatal accidents, an increase of 0.1 percent over the 1979 figure of 45,212, and 51,077 fatalities which is virtually unchanged from the 1979 figure of 51,093. Of the total fatalities, 8,071 (15.8 percent) were pedestrians and 4,960 (10.0 percent) were motorcycle riders.
- The fatality rate in 1980 was 3.38 fatalities per 100 million vehicle miles of travel, which is 1.2 percent greater than the 3.34 rate in 1979.
- With respect to the sex and age distribution of the fatalities, the most conspicuous group were the 20–24 year old males.
- Of all 1980 fatal accidents, 62.2 percent (28,144) were single vehicle accidents and accounted for 51.4 percent (21,531) of the 41,913 motor vehicle occupant fatalities. They also accounted for 94.4 percent (8,653) of fatalities to nonmotorists including pedestrians (7,584), pedalcyclists (952), and other nonmotorists (117).
- In single vehicle accidents, the most frequently reported "first harmful event" was collision with a fixed object. The second most frequent was a collision with a pedestrian, pedalcyclist or other nonmotorist.
- The predominant "manner of collision" in multi-vehicle accidents was "angle" impact—constituting 40.6 percent of these fatal accidents and accounting for 19.1 percent of the vehicle occupant fatalities in all fatal accidents.
- Although the Federal Highway Administration (FHWA) figures indicate that 56.3 percent of 1980 estimated vehicle miles of travel were in urban areas, less than half (43.7 percent) of the fatal accidents occurred in these areas. This is possibly due to the lower operating speeds in these areas. Most fatal accidents occurred on State routes during normal weather conditions and daylight hours.
- The 1980 fatal accidents involved 63,467 motor vehicles, a decrease of about 2.0 percent from the 1979 figure of 64,762.
- Passenger cars, light trucks, and motorcycles, in that order, were the most frequently involved vehicle types in 1980 fatal accidents and were associated with the largest proportions of occupant fatalities.

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- Occupant fatalities in 1980 fatal accidents occurred in the vehicle types shown in Table 1.
- For the passenger cars, the fatalities were associated with the manner of collision as in Table 2.
- The 130 school bus-related fatal accidents in 1980 involved nine fatalities (two drivers and seven passengers) to school bus occupants, 53 nonoccupant fatalities, and 88 fatalities to occupants of other vehicles.
- In 1980, 82.0 percent of all motor vehicle traffic fatalities were vehicle occupants (41,913 occupants). Over two-thirds of the occupants killed were drivers. These statistics represent virtually no change from 1979.
- Slightly over one-third (37.9 percent) of the drivers involved in fatal accidents in 1980 were under age 25. This same age group accounted for more than half of the motorcycle drivers in fatal accidents.
- In 1980, the fatal nonmotorists accounted for 17.9 percent of all fatalities and included 8,071 pedestrians (88.1 percent of all fatal nonmotorists) killed; the number of pedalcyclists killed was 964 (10.5 percent of all fatal nonmotorists); and 129 (1.4 percent of all nonmotorists) others. Table 3 shows the 1980 pedestrian and pedalcyclist fatalities and percent change from 1975 and 1979.

Table 1 (41,913)

Occupant Fatalities by Vehicle Type

Vehicle Type*	Vehicles Involved in Fatal Accidents	Occupant Fatalities	Percentage Change in Fatalities From 1975	Percentage Change in Fatalities From 1979
Passenger Cars	39,039	27,433	+5.8	−1.3
Motorcycles	5,008	4,960	+37.2	+0.1
Other Motorized Cycles	185	183	+59.0	+0.0
Buses	330	46	−13.2	+17.9
Light Trucks	11,473	6,563	+51.5	+1.7
Medium Trucks	1,092	285	+25.0	−17.2
Heavy Trucks	4,280	976	+12.7**	−10.2
Other And Unknown	2,060	1,467	−0.7	+11.6
Total	**63,467**	**41,913**	**+16.7**	**-0.0**

* See Glossary for body types comprising these vehicle types.
**1976 is used as base year for the Heavy Truck Vehicle Type.

Table 2 (27,433)

Passenger Car Fatalities by Manner of Collision

Manner of Collision	1980 Fatalities	(Percent)	Percent Change in Fatalities from 1979
Not Collision With Vehicle in Transport	13,876	(50.6)	+3.9
Rear-End***	1,334	(4.9)	−4.3
Head-on	6,340	(23.1)	+11.4
Angle	5,308	(19.3)	−16.3
Sideswipe	505	(1.9)	−47.8
Other	12	(0.0)	−20.0
Unknown	58	(0.2)	+61.1

*** See Glossary for these and other terms in this report.

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- More than half (65.4 percent) of the 1980 pedestrian fatalities occurred in urban areas.
- In 1980 there were 483 fatal accidents and 509 fatalities in Puerto Rico, a 5.6 percent decrease from 1979. The pedestrian fatalities were 40.1 percent which is in sharp contrast to the U.S. where most fatalities were vehicle drivers.

Table 4 presents a quick reference for some important FARS and other national statistics for 1980. Some interesting facts, presented as rates, are shown using these statistics.

Table 3
Pedestrian and Pedalcyclist Fatalities

	Fatalities	Percentage Change From 1975	Percentage Change From 1979
Pedestrians	8,071	+7.4	-0.3
Pedalcyclists	964	-3.9	+3.4

Table 4
1980 National Statistics and Rates

1980 Statistics	
Population (thousands)	221,690
Registered Vehicles (thousands)	164,852
Licensed Drivers (thousands)	145,972
Vehicle Miles Traveled (VMT)(100 million)	15,106
(1) Fatal Accidents	45,271
(2) Vehicles in Fatal Accidents	63,467
(3) Fatalities	51,077
(4) Occupants in Fatal Accidents	103,024
(5) Occupants Killed in Fatal Accidents	41,913
(6) Nonoccupants Killed in Fatal Accidents	9,164

Rates (Numbers in parentheses refer to the numbered statistics on the left, under "1980 Statistics")	
Registered Vehicles Per Person	.74
VMT Per Registered Vehicle	9163.37
Fatal Accidents Per 100 Million VMT	3.00
Licensed Drivers Per 10 Persons	6.58
Fatalities Per 100 Million VMT	3.38
Vehicles (2) Per Fatal Accident (1)	1.40
Fatalities (3) Per Fatal Accident (1)	1.13
Fatalities (3) Per 1,000 Population	0.23
Occupants (4) Per Fatal Accident (1)	2.28

Sources: Population—U.S. Bureau of Census (July 1980 estimates).
Registered Vehicles, Licensed Drivers and VMT—Federal Highway Administration (1980)
Remaining Statistics—Fatal Accident Reporting System (1980)

II. Fatality Profile

Fatal Accident Reporting System

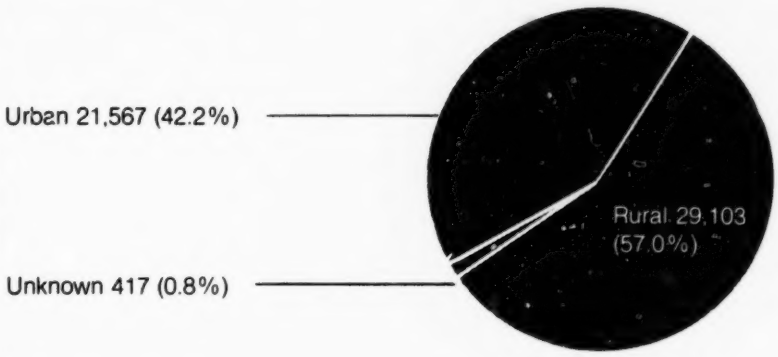
In 1980, 51,077 men, women, and children died in motor vehicle traffic accidents. This represents virtually no change from the 1979 death toll of 51,093. However, it does mean that on the average, someone died on the Nation's highways every 10.3 minutes. This chapter presents a broad overview of fatal accident characteristics.

A profile of the 1980 fatalities by various accident characteristics is presented in Figures 1a through 1e.

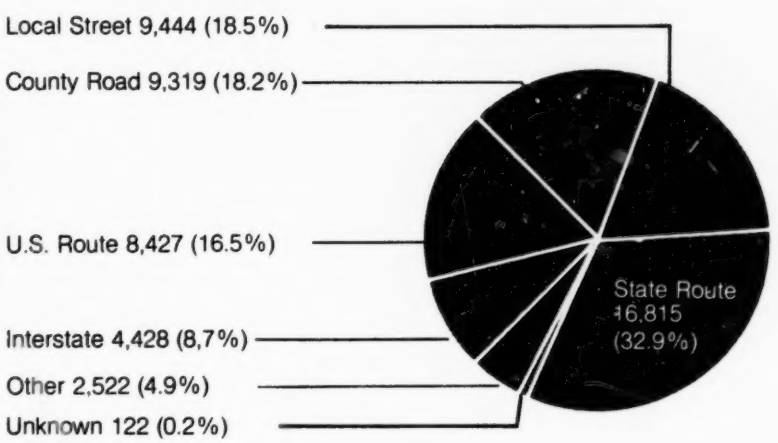
- Figure 1a shows that as in previous years, more fatalities occurred in rural areas than in urban areas.
- FARS accidents are also classified by the "Class Trafficway"* in Figure 1b. This distribution also remains unchanged since 1979. Again, state routes accounted for the largest proportion of fatalities. Less than half as many fatalities occurred on the Interstate System as on local streets, the next largest category.
- Figure 1c shows an overwhelming majority of the fatalities resulted from accidents that occurred during normal weather conditions. Only 11.6 percent of the fatalities were associated with inclement conditions.

Figure 1
Distribution of Fatalities (51,077)

a. By Land Use



b. By Class Trafficway



* See Glossary for definitions of this and other terms.

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- Figure 1d shows that passenger car occupants accounted for the greatest share of fatalities (53.7 percent), followed by pedestrians (15.8 percent).
- Figure 1e displays the distribution of fatalities by "Person Type." This is nearly identical to that of 1979. Drivers account for 56.4 percent of the fatalities and passengers the next highest proportion (more than one quarter).

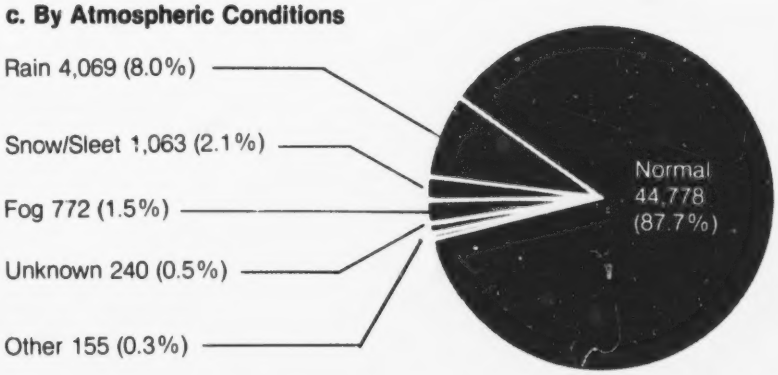
Figure 2 shows the vast majority (90.0 percent) of the 45,271 fatal accidents in 1980 resulted in one fatality. The figure presents a count of fatalities per fatal accident. Some of the accidents included both occupant and nonoccupant fatalities. The numbers indicated that more than three fatalities in an accident was a rare event accounting for 0.5 percent of all fatal accidents. These accidents accounted for 1,081 (2.5 percent) of the fatal occupants and 21 (0.2 percent) of the fatal nonoccupants. Overall, there was an average of 1.1 fatality per accident.

Table 5 details the 103,024 occupants of the vehicles in fatal accidents by occupant type and age. Of the occupants, 61.1 percent were drivers, with 45.8 percent of the drivers being fatalities. This compares to 38.7 percent of the occupants being passengers with 32.5 percent of them being killed. More than half of the passenger fatalities were under the age of 25 and 63.4 percent of the driver fatalities were under the age of 35.

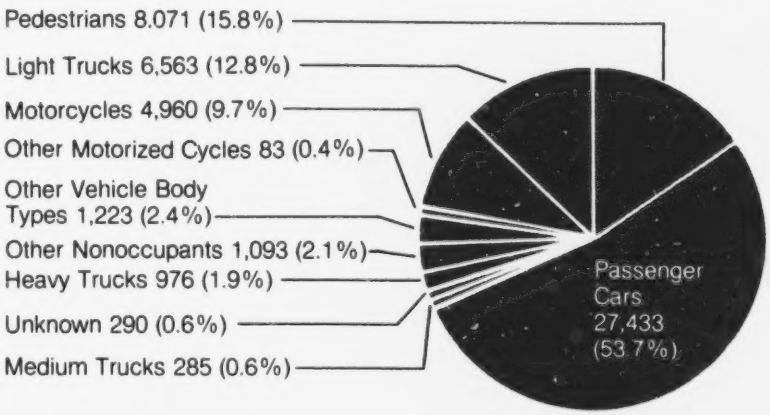
In Figure 3, the percent distribution of motor vehicle traffic accident fatalities by age group is compared to that of the U.S. population. It can be observed that the representation of the 15-24 age group in motor vehicle traffic fatalities was nearly twice its representation in the population. In fact, it can be seen that the two age groups comprising the 15-34 year olds accounted for more than half of the fatalities, but only slightly more than one-third of the total population. This may be due to the large number of driver fatalities who were the only vehicle occupant.

Figure 1 (Con't) (51,077)
Distribution of Fatalities

c. By Atmospheric Conditions



d. By Vehicle Type



e. By Person Type

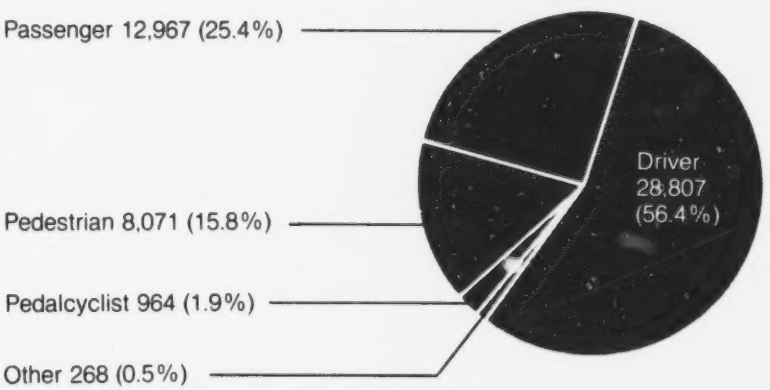


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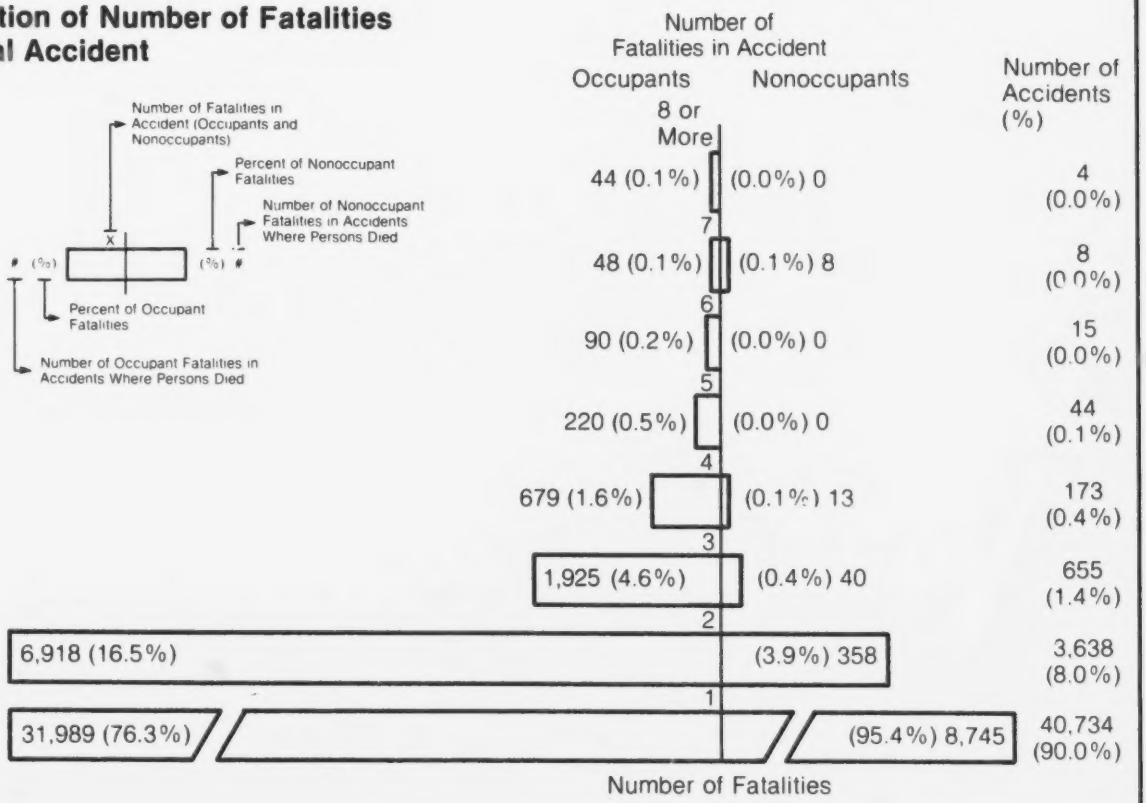
Figure 2

Distribution of Number of Fatalities Per Fatal Accident



A better set of figures for comparison over several years are fatality rates, computed using factors reflecting the amount of motor vehicle travel. Vehicle miles of travel (VMT), driver licenses in force, and vehicle registration data were obtained from the FHWA for this purpose. Rates are computed per 100 million VMT, per 10,000 licenses, and per 1,000 registered vehicles for each of the years. Table 6 contains the pertinent figures including the actual number of fatalities and the annual percent changes.

Each of the years 1975 through 1978 shows a steady increase in fatalities which is coincident with a steady increase in VMT. However, in 1979 and 1980, fatalities remained almost constant while VMT decreased. The resulting percent change from 1979 to 1980 in fatalities per 100 million VMT is +1.2 percent.

The rate of fatalities per 10,000 licenses in force increased in 1977 and 1978 but has declined in 1979 and 1980. This same characteristic is true for the fatality rate per 1,000 registered vehicles.

Table 5 (103,024)

Distribution of Occupants of Vehicles in Fatal Accidents by Age

		Drivers		Passengers		Unknown Occupant Type	
Age		Total	Fatalities	Total	Fatalities	Total	Fatalities
4 or Less	No.	0	0	2,203	698	0	0
	%	0.0	0.0	5.5	5.4	0.0	0.0
5-14	No.	240	170	4,759	1,023	6	4
	%	0.4	0.6	11.9	7.9	3.0	2.9
15-24	No.	23,613	10,716	17,926	5,778	120	84
	%	37.5	37.2	44.9	44.6	60.0	60.4
25-34	No.	16,501	7,366	5,816	1,887	45	33
	%	26.2	25.6	14.6	14.6	22.5	23.7
35-44	No.	8,364	3,480	2,471	854	19	13
	%	13.3	12.1	6.2	6.6	9.5	9.4
45-59	No.	5,910	2,608	1,804	691	2	2
	%	9.4	9.1	4.5	5.3	1.0	1.4
55-64	No.	4,341	2,105	1,657	687	2	1
	%	6.9	7.3	4.2	5.3	1.0	0.7
65 or Over	No.	3,811	2,322	2,240	1,240	2	1
	%	6.1	8.1	5.6	9.6	1.0	0.7
Unknown	No.	159	40	1,009	109	4	1
	%	0.3	0.1	2.5	0.8	2.0	0.7
Total	**No.**	**62,939**	**28,807**	**39,885**	**12,967**	**200**	**139**
	%	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

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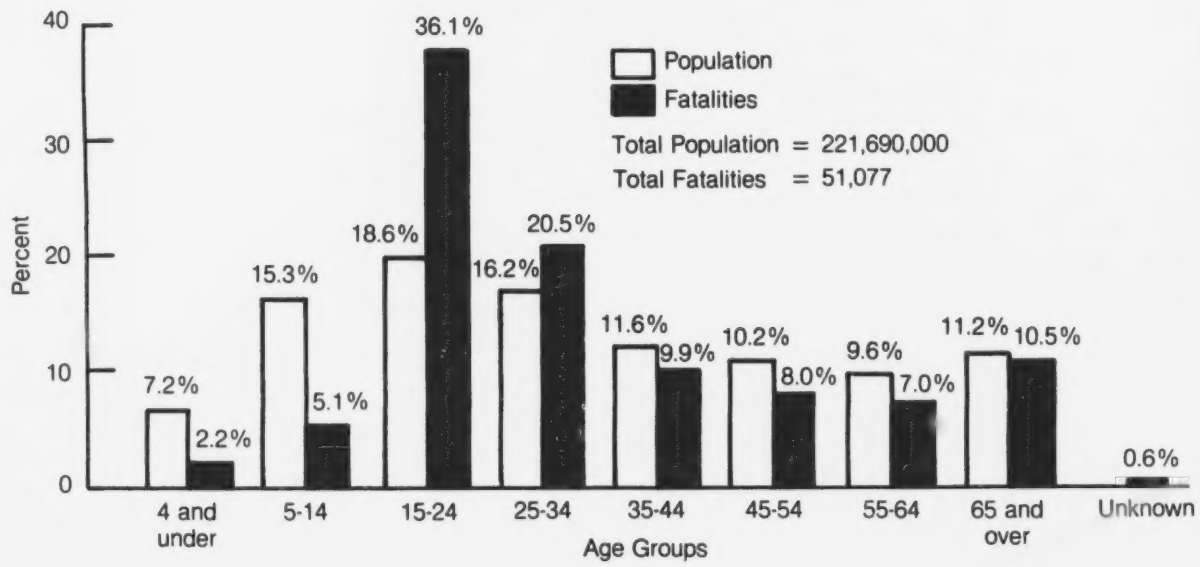
Figure 3
Percent Distribution of Population and Fatalities



Source for population: U.S. Bureau of Census, July 1980 estimates.

Table 6
Fatality Rates

	1975	1976	1977	1978	1979	1980
Number of Traffic Fatalities	44,525	45,523	47,878	50,331	51,093	51,077
Vehicle Miles Traveled (100 Million)	13,277	14,024	14,670	15,447	15,291	15,106
Licensed Drivers (10,000)	12,979	13,404	13,812	14,084	14,328	14,597
Registered Vehicles (1,000)	137,913	143,476	147,262	153,637	159,621	164,852
Fatalities Per 100 Million Vehicle Miles	3.35	3.25	3.26	3.26	3.34	3.38
Annual Percentage Change in Fatalities Per 100 Million Vehicle Miles Traveled	—	-3.0	+0.3	0.0	+2.4	+1.2
Fatalities Per 10,000 Licensed Drivers	3.43	3.40	3.47	3.57	3.56	3.50
Annual Percentage Change in Fatalities Per 10,000 Licensed Drivers	—	-0.9	+2.1	+2.9	-0.3	-1.7
Fatalities Per 1,000 Registered Vehicles	0.323	0.317	0.325	0.328	0.320	0.310
Annual Percentage Change in Fatalities Per 1,000 Registered Vehicles	—	-1.8	+2.5	+0.9	-2.4	-3.1

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The distribution of fatalities by age and sex is presented in Figure 4. The total height of each bar represents the percent of fatalities in each age group. The distribution of fatalities by sex across the age groups is indicated by percentages inside the bars. The numbers in parentheses above the bars indicate the size of the age groups on which the percentages are based. The percentages above the bars are the proportion of all fatalities for that age group.

In every age group, males outnumber females. Ages 15-34 of the combined sexes account for the bulk of the fatalities (56.6 percent), with the males accounting for 43.9 percent and the females accounting for 12.7 percent of these fatalities.

The remainder of this chapter deals with fatalities with time as the classifying factor. Figure 5 begins by depicting fatalities by season. Smaller and smaller increments of time are used until Figure 8 which shows fatalities occurring within four hour segments of each day of the week. Table 7 and Figure 9 provide some interesting insight into two specific areas: holidays and time lag between the day of the accident occurrence and the day of death resulting from the accident. Except for Figure 9, the remaining figures and tables of this chapter provide statistics based specifically on the date of the accident. Each of these figures and tables will be discussed further in this chapter.

Differences in statistics within each figure or table are due to a variety of factors. However, the influence of each factor changes as the time interval used changes. For example, it is probable that the factor VMT has a significant influence on the seasonal distribution of fatalities. But, on the other extreme, this influence is probably diminished and the influence of driver attentiveness is increased in the variations within four hour periods of the day. During the late segments of the day, drivers may become drowsy or may be under the influence of alcohol. These factors may play a different role in accident causation than does VMT during the very late and early hours of the day. It is important to bear in mind the effect of varying factors when viewing the following figures and tables.

As in previous years, the greatest number of the year's fatalities in 1980 occurred in the summer as shown in Figure 5. Nearly 10 percent more fatalities occurred during summer than winter. Spring and fall were approximately equal, but each was still almost 5 percent less than summer. However, due to the lack of exposure data, it cannot be known for certain that the seasonal fatality rates are different.

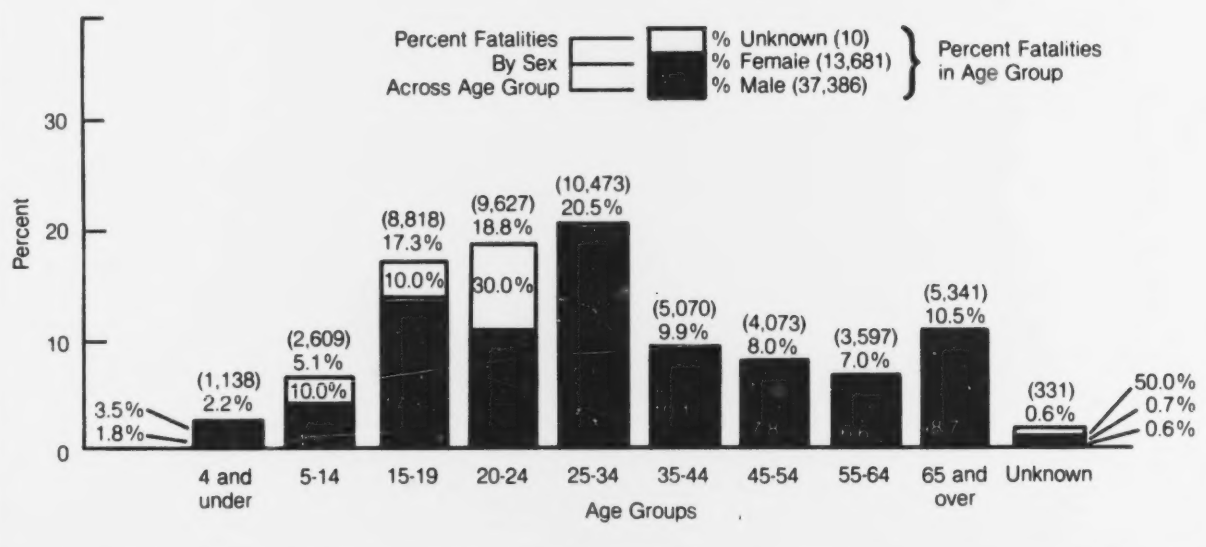
Figure 6 presents fatalities by month for 1980 and the monthly average for the years 1975 through 1979. The figure reflects the seasonal variation seen in Figure 5. Surprisingly, the average number of fatalities occurring during October for the previous five years exceeds the 1980 count by 2.0 percent. This is in contrast to all the other months in which the average is less than the 1980 figures. Fatalities increased rather dramatically after April and then decreased after August.

Several factors can influence the month-to-month change in fatalities over the years. These include (a) the yearly increase in overall fatalities, (b) the severity and duration of winter conditions in the country, and (c) fuel shortages and their effect on driving habits. While the precise effect of these factors is not completely understood, they should be remembered when considering the monthly fatalities. (See Chapter X for a presentation of fatalities with respect to time.)

The relationship of 1980 to the average of 1975 through 1979 is fairly constant across all days of the week as shown in Figure 7. As the percentages in the bars indicate, the day of week proportion of fatalities varies by less than three-tenths of a percent for all

Figure 4
Fatalities by Age and Sex

(51,077)



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days except Saturday. Even still, that difference is only four-tenths of a percent. This demonstrates the stability of the distribution of fatalities by day of week. Fridays, Saturdays, and Sundays accounted for more than half of the 1980 fatalities.

Figure 8 reveals a pattern of fatalities by the time and day of the accident. The weekends had the highest concentration of fatalities as seen in Figure 7, with highs and lows throughout the week. During weekdays, the lows tended to occur between 4 am and 8 am, the highs between 4 pm and 8 pm. Note that these highs and lows occurred at different times during the weekends. The 1975 through 1979 averages for each four hour segment varied with respect to the 1980 data. One interesting obser-

Figure 5
Seasonal Distribution of Fatalities

(51,077)

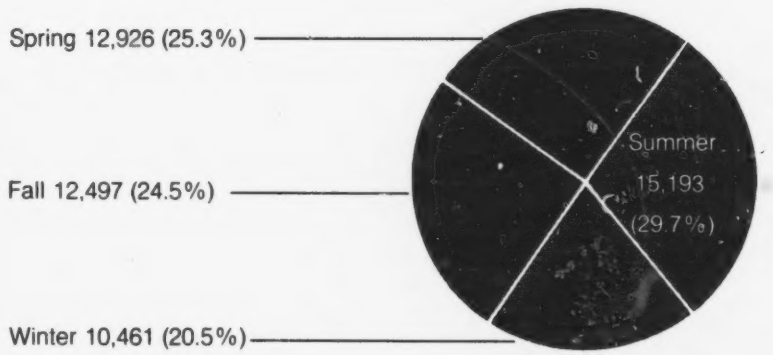

Figure 6
Fatalities by Month

(51,077)

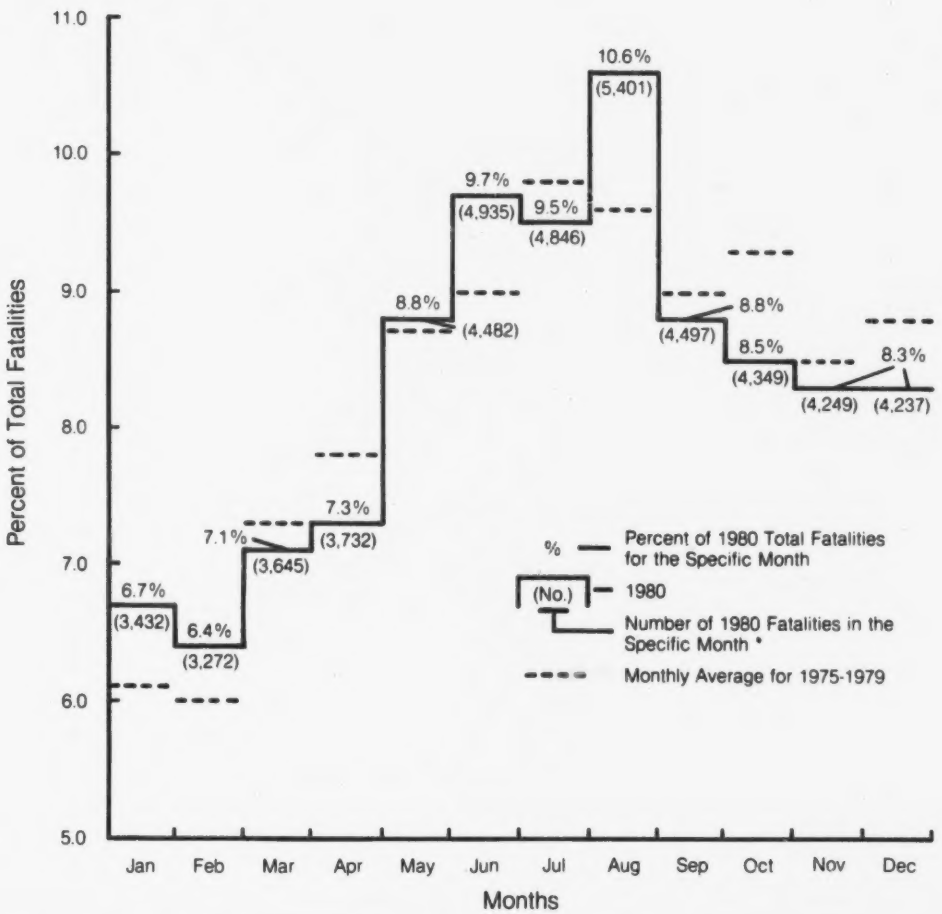

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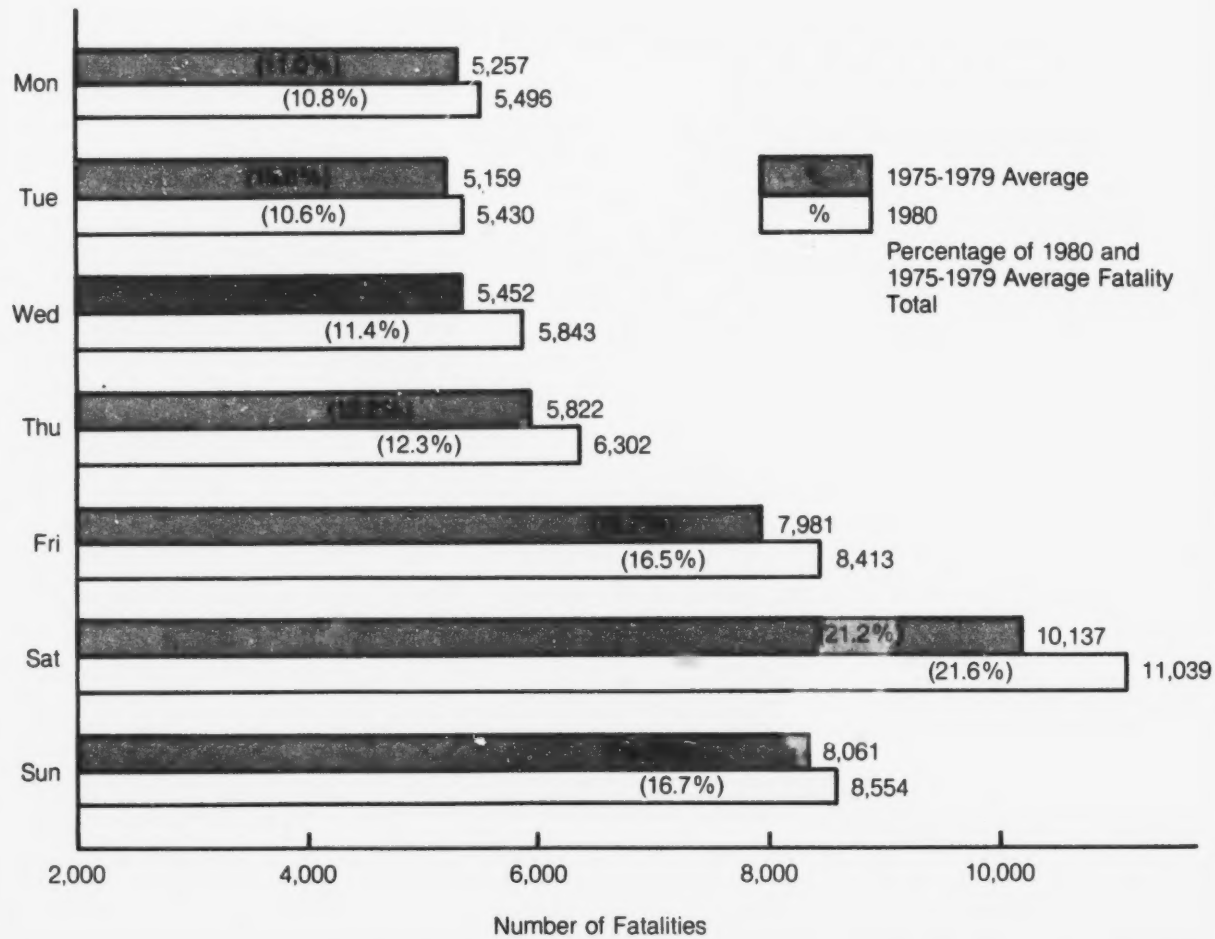
Figure 7
Fatalities by Day of Week

(51,077)



vation is that during weekdays (Monday through Thursday) of 1980, the period beginning at 4 am had more than the average fatalities while the period beginning at 8 pm had fewer fatalities than the average. Also, the period beginning at 4 pm had fewer fatalities than the average. This may reflect a change in commuter characteristics.

Table 7 lists the fatalities for major holidays. The specific days selected and used for each holiday reflect the assumed travel days for the majority of holiday travelers. The statistics for New Year's are derived somewhat differently than the others as they are for December 30 and 31, 1980 (New Year's 1981) and January 1, 1980 (New Year's 1980). This is necessary to show data pertaining only to 1980. Leap day is

Table 7
1980 Holiday Fatalities

Holiday	Fatalities	Percent of Annual
New Year's (12/30-31, 1/1) (3 Days)	413	0.8
Memorial Day (5/23-5/27) (5 Days)	417	0.8
Fourth of July (7/3-7/7) (5 Days)	874	1 7
Labor Day (8/29-9/2) (5 Days)	940	1.8
Thanksgiving (11/26-11/30) (5 Days)	793	1.6
Christmas (12/24-12/28) (5 Days)	786	1.5
Leap Day (2/29) (1 Day)	157	0.3

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also included in this table. Although it is not actually a holiday, it is presented here because it implies that had 1980 not had the additional day, there may have been a greater difference between 1979 and 1980 fatality counts.

The 28 days included in the holiday periods accounted for 8.2 percent of the fatalities. The most dangerous holiday from the motor vehicle fatality point of view was the five day period around Labor Day (940 fatalities) followed closely by the five day period around the Fourth of July (874 fatalities). When using the numbers from Figure 8 for an average Thursday through Monday five day period, 762 fatalities can be expected which is 1.5 percent of the 1980 fatalities.

Figure 9 is a graph relating the number of days between accidents and the resulting fatalities. The figure indicates that 81.9 percent of all motor vehicle accident fatalities occur on the same day of the accident. The FARS includes only those accidents which result in a fatality within 30 days. While other data systems and some States use a 90-day rule, previous studies have shown that this longer period of time results in less than a 2 percent increase in fatalities. Also, many other countries report fatalities according to the 30-day rule. Therefore, in the interest of timely reporting and international conformity, the U.S. Department of Transportation adopted the 30-day rule.

Figure 9
Number of Days Between Accidents and Fatalities

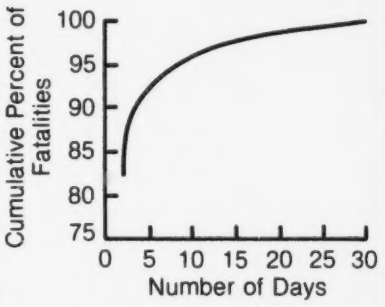
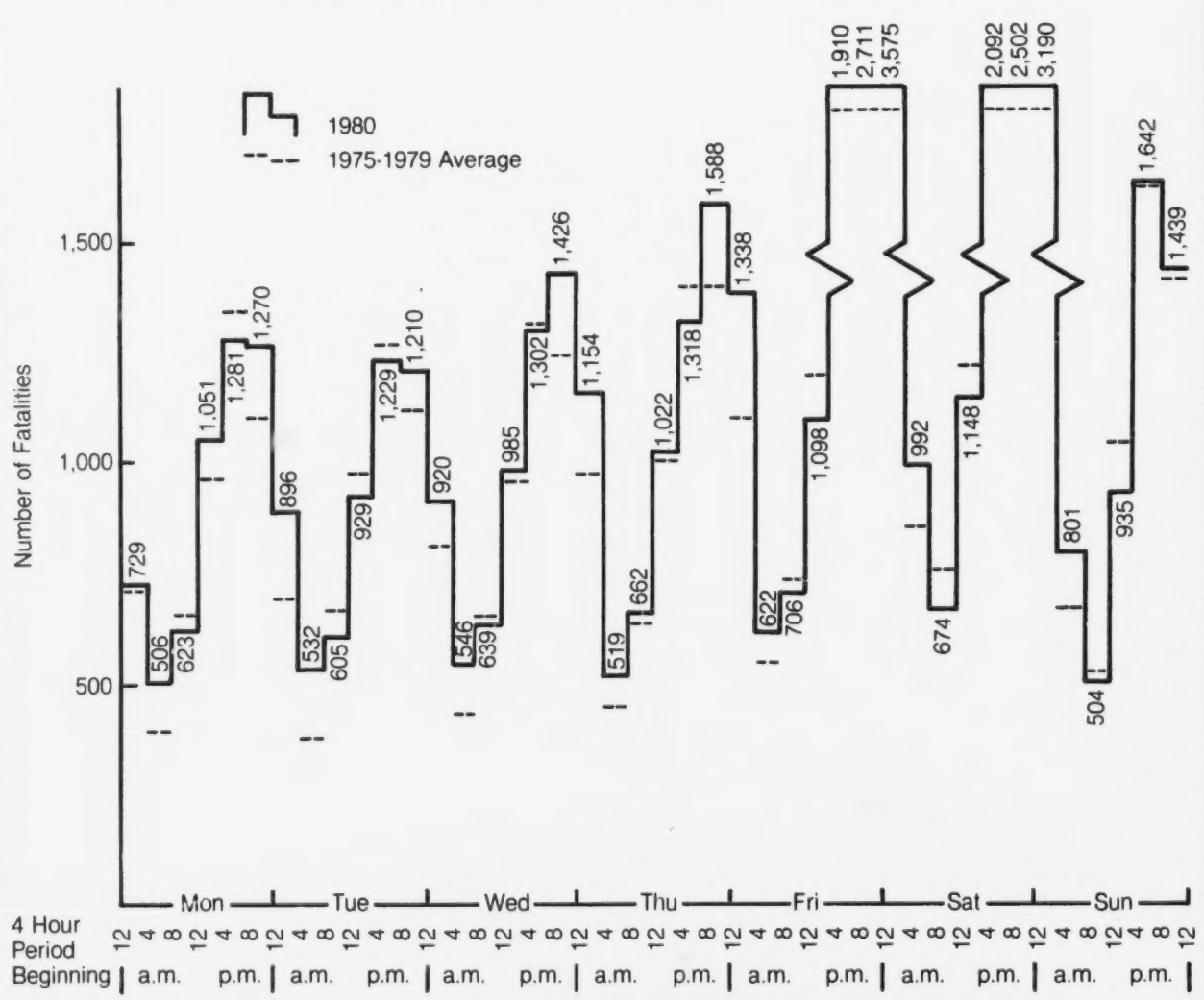


Figure 8 (51,077)
Number of Fatalities Per 4 Hour Period by Day of Week



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III. State Statistics

This chapter lists accident and fatality counts for each State and the District of Columbia. Also listed are the State counts of fatalities by the first harmful event and fatal accidents by class trafficway.

In 1980, the number of accidents totaled 45,271, a 0.1 percent increase over the 1979 figure of 45,212. These accidents resulted in 51,077 fatalities, which is virtually unchanged from the 1979 count of 51,093. The fatality rate for the country increased from 3.34 to 3.38 or by 1.2 percent, with 21 of the States experiencing a rate increase. The fatality rates and change from 1979 for each State are depicted on the map in Figure 10 and were computed using vehicle miles of travel (VMT) obtained from the FHWA. The 1980 VMT by State is a preliminary estimate. Table 8 lists the State fatality rates for 1980, percent changes in fatality counts from 1979 to 1980, and the fatality counts for the previous years.

The two most frequently reported first harmful events were collisions with motor vehicles in transport and collisions with fixed objects. This is true in nearly all States, as shown in Table 9.

Tables 10 and 11 contain the monthly percent of fatal accidents and the percent fatalities by class trafficway. Large variations in monthly percentages can be expected in States with a small number of fatal accidents.

As was evident in 1979, among the States with larger totals, and in geographical areas with severe weather conditions, there is a pattern of reduced fatal accidents during winter months. Overall, the summer months accounted for the greatest number of fatalities.

The variations in the percentages of fatal accidents by class trafficway may be caused by State-to-State differences in the number of miles of roadway of each of the types listed in Table 11. Nationally, about one-third of the fatal accidents occurred on roadways classified as other state route. County roads and local streets along with other state route accounted for slightly more than that for a total of 69.9 percent for those three class trafficways.

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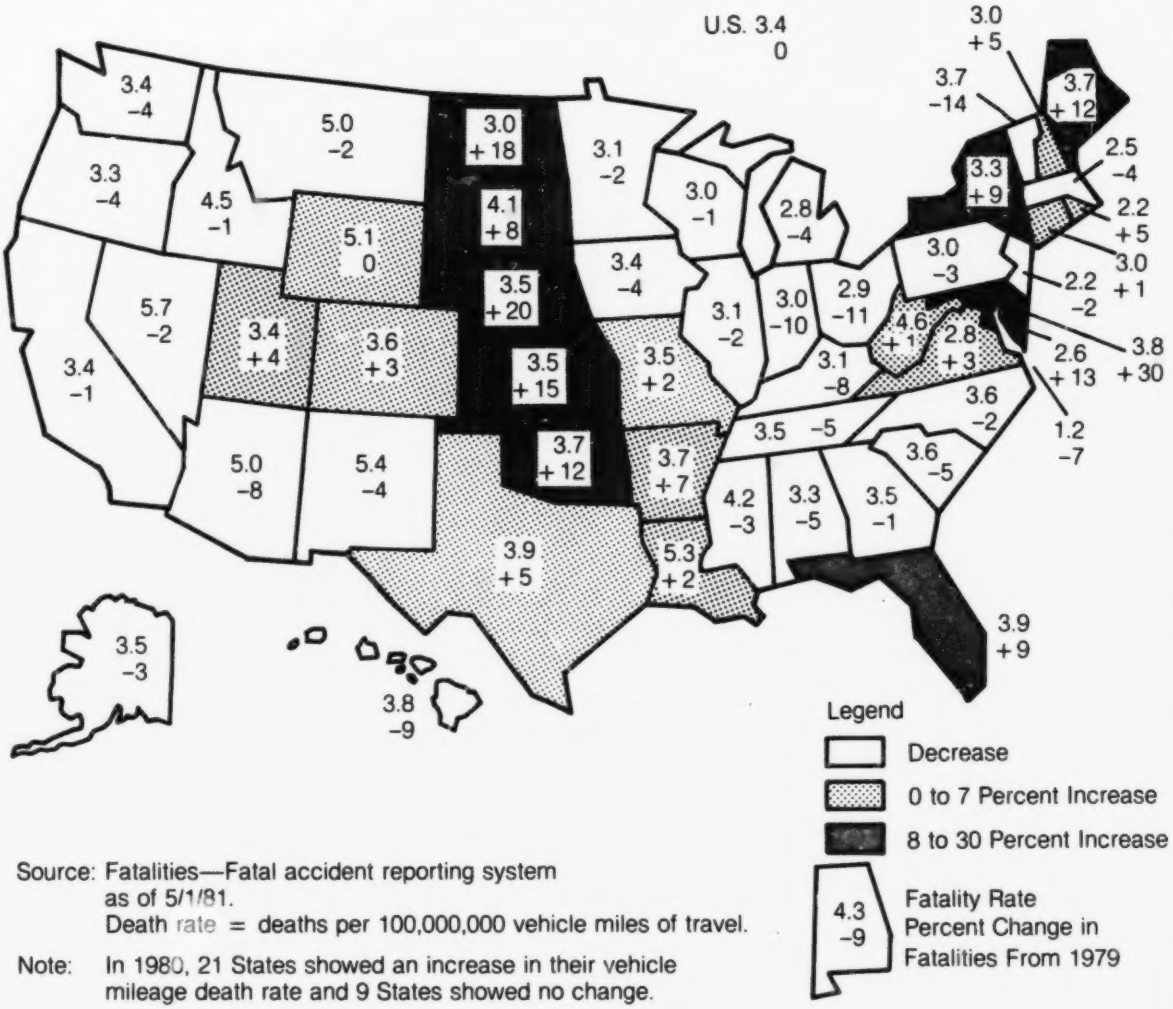
Figure 10

1980 Fatality Rate and Percent Change from 1979



Source: Fatalities—Fatal accident reporting system as of 5/1/81.
Death rate = deaths per 100,000,000 vehicle miles of travel.

Note: In 1980, 21 States showed an increase in their vehicle mileage death rate and 9 States showed no change.

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Table 8 (51,077)

Fatalities for 1975-1980, Percent Change Between 79 and 80, and Fatalities Per Hundred Million Vehicle Miles of Travel (VMT)

State	Number of Fatalities						Percentage Change 1979-1980	Fatalities Per 100 Million VMT
	1975	1976	1977	1978	1979	1980		
Alabama	902	988	1,081	1,142	998	940	-5.8	3.3
Alaska	112	125	135	127	90	87	-3.3	3.5
Arizona	670	739	933	1,027	1,029	947	-8.0	5.0
Arkansas	559	531	551	571	548	587	+7.1	3.7
California	4,092	4,395	4,839	5,310	5,542	5,496	-0.8	3.4
Colorado	581	620	694	694	691	709	+2.6	3.6
Connecticut	389	417	441	452	568	575	+1.2	3.0
Delaware	122	116	119	125	118	153	+29.7	3.8
District of Columbia	70	56	58	49	44	41	-6.8	1.2
Florida	1,998	1,956	2,021	2,235	2,593	2,823	+8.9	3.9
Georgia	1,360	1,264	1,372	1,472	1,524	1,508	-1.0	3.5
Hawaii	144	145	149	194	205	186	-9.3	3.8
Idaho	281	279	325	327	333	331	-0.6	4.5
Illinois	2,041	2,031	2,126	2,140	2,017	1,969	-2.4	3.1
Indiana	1,128	1,258	1,210	1,266	1,299	1,165	-10.3	3.0
Iowa	670	779	628	638	655	626	-4.4	3.4
Kansas	509	549	552	572	519	595	+14.6	3.5
Kentucky	863	854	940	878	896	820	-8.5	3.1
Louisiana	934	941	990	1,079	1,195	1,219	+2.0	5.3
Maine	223	228	213	237	236	265	+12.3	3.7
Maryland	670	660	661	711	671	756	+12.7	2.6
Massachusetts	864	789	744	861	917	881	-3.9	2.5
Michigan	1,779	1,924	1,915	2,020	1,823	1,750	-4.0	2.8
Minnesota	754	802	837	962	867	848	-2.2	3.1
Mississippi	546	581	684	784	715	695	-2.8	4.2
Missouri	1,045	1,187	1,181	1,190	1,147	1,175	+2.4	3.5
Montana	291	299	316	270	332	325	-2.1	5.0
Nebraska	369	397	345	340	330	396	+20.0	3.5
Nevada	218	218	251	305	354	346	-2.2	5.7
New Hampshire	151	157	149	171	184	194	+5.4	3.0
New Jersey	1,043	1,029	1,082	1,124	1,142	1,121	-1.8	2.2
New Mexico	555	549	668	669	633	608	-3.9	5.4
New York	2,366	2,291	2,336	2,436	2,396	2,610	+8.9	3.3
North Carolina	1,506	1,502	1,428	1,492	1,527	1,503	-1.6	3.6
North Dakota	167	182	175	181	128	151	+18.0	3.0
Ohio	1,766	1,893	1,835	2,047	2,281	2,033	-10.9	2.9
Oklahoma	757	832	852	901	853	959	+12.4	3.7
Oregon	562	630	657	708	676	646	-4.4	3.3
Pennsylvania	2,078	2,021	2,067	2,081	2,153	2,089	-3.0	3.0
Rhode Island	110	119	133	108	123	129	+4.9	2.2
South Carolina	820	806	927	883	900	852	-5.3	3.6
South Dakota	195	219	208	191	211	228	+8.0	4.1
Tennessee	1,126	1,149	1,223	1,241	1,210	1,154	-4.6	3.5
Texas	3,372	3,172	3,635	3,914	4,168	4,366	+4.8	3.9
Utah	272	250	355	370	321	334	+4.0	3.4
Vermont	143	113	116	119	159	137	-13.8	3.7
Virginia	993	1,000	1,118	1,063	1,016	1,095	+2.8	2.8
Washington	758	804	912	985	1,015	971	-4.3	3.4
West Virginia	461	489	514	457	512	516	+0.8	4.6
Wisconsin	930	935	931	971	985	972	-1.3	3.0
Wyoming	210	253	246	241	244	245	+0.4	5.1
Total	**44,525**	**45,523**	**47,878**	**50,331**	**51,093**	**51,077**	**-0.0**	**3.4**

Table 9 (45,271)

Percent of Fatal Accidents by First Harmful Event

State	Total Accidents	Non-Collision		Collision With				
		Over-Turn	Other	Pedestrian or Pedalcyclist	Motor Vehicle in Transport	Other Object Not Fixed	Fixed Object	Unknown
Alabama	835	15.3	1.9	14.5	38.6	4.3	25.4	0.0
Alaska	78	24.4	1.3	14.1	33.3	1.3	25.6	0.6
Arizona	833	17.8	1.4	22.6	35.5	2.8	19.3	0.0
Arkansas	485	15.1	2.1	12.6	34.2	5.4	30.7	0.0
California	4,930	8.9	1.2	20.2	34.4	4.3	31.0	0.0
Colorado	625	19.4	3.4	15.0	32.5	4.8	25.0	0.0
Connecticut	520	5.2	1.2	17.1	33.8	2.7	40.0	0.0
Delaware	135	4.4	0.7	13.3	40.0	5.9	35.6	0.0
District of Columbia	38	2.6	0.0	42.1	36.8	2.6	15.0	0.0
Florida	2,517	7.1	2.6	29.8	38.1	3.2	19.2	0.0
Georgia	1,348	11.6	1.1	17.1	36.4	3.2	30.6	0.1
Hawaii	167	10.2	3.6	25.1	31.1	2.4	27.5	0.0
Idaho	287	23.0	2.1	9.4	40.1	3.1	22.3	0.0
Illinois	1,771	7.1	1.6	21.3	37.9	4.6	27.4	0.0
Indiana	1,028	5.9	2.2	14.3	38.2	7.1	31.8	0.4
Iowa	541	11.5	1.8	8.9	42.7	3.9	31.2	0.0
Kansas	506	14.4	1.6	9.9	39.7	4.2	30.2	0.0
Kentucky	746	7.1	2.1	15.1	33.5	4.8	37.3	0.0
Louisiana	1,080	7.0	1.4	19.5	41.9	2.8	27.3	0.0
Maine	236	8.9	3.4	11.4	28.0	2.5	45.8	0.0
Maryland	682	5.7	0.7	20.1	34.2	2.9	36.4	0.0
Massachusetts	813	1.6	0.7	18.7	30.8	2.7	45.5	0.0
Michigan	1,561	6.5	1.0	21.1	40.7	3.4	27.2	0.0
Minnesota	742	15.5	0.7	16.2	40.4	3.4	23.7	0.1
Mississippi	603	15.4	0.8	12.4	41.5	3.8	25.7	0.3
Missouri	1,025	9.5	0.6	14.1	36.1	3.9	35.8	0.0
Montana	276	33.7	1.1	10.5	28.3	2.9	23.6	0.0
Nebraska	337	15.7	1.2	8.9	42.7	7.1	24.3	0.0
Nevada	302	22.8	2.3	15.9	33.4	2.0	23.5	0.0
New Hampshire	175	8.0	1.1	12.6	25.7	2.3	50.3	0.0
New Jersey	1,023	2.2	1.3	28.2	31.7	3.5	33.2	0.0
New Mexico	515	22.1	1.7	20.2	32.0	2.9	21.0	0.0
New York	2,374	3.1	1.1	29.7	29.7	2.3	34.2	0.0
North Carolina	1,327	6.4	1.1	19.4	34.7	2.9	35.6	0.0
North Dakota	133	27.1	0.0	9.8	31.6	3.8	27.8	0.0
Ohio	1,805	4.5	1.2	16.5	35.8	4.5	37.5	0.0
Oklahoma	820	6.3	2.3	11.3	40.6	4.8	34.6	0.0
Oregon	585	16.8	2.1	15.9	33.8	3.2	28.2	0.0
Pennsylvania	1,882	3.5	1.4	17.0	32.6	1.9	41.4	2.2
Rhode Island	118	1.7	3.4	22.0	30.5	3.4	39.0	0.0
South Carolina	747	11.1	2.9	18.9	34.7	4.6	27.8	0.0
South Dakota	188	21.3	1.1	10.6	38.3	0.5	27.7	0.5
Tennessee	1,008	9.2	1.6	12.6	36.1	2.6	37.7	0.2
Texas	3,814	11.3	1.6	18.5	39.0	5.3	24.3	0.0
Utah	291	24.1	2.4	18.6	33.7	3.8	17.5	0.0
Vermont	125	8.8	1.6	11.2	26.4	2.4	49.6	0.0
Virginia	938	10.1	1.9	19.4	30.5	2.3	35.7	0.0
Washington	847	13.8	1.4	13.5	37.4	3.0	30.9	0.0
West Virginia	457	12.3	1.5	11.8	37.9	2.8	33.7	0.0
Wisconsin	847	5.9	2.1	14.4	39.9	4.5	33.2	0.0
Wyoming	205	33.2	2.9	6.3	31.7	4.4	21.5	0.0
Total	**45,271**	**9.5**	**1.5**	**18.7**	**35.9**	**3.7**	**30.6**	**0.1**

Table 10 (45,271)

Percent of Fatal Accidents by Month

State	Total Fatal Accidents	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Alabama	835	7.7	9.0	7.4	7.7	6.3	10.4	9.5	8.0	9.1	9.2	8.5	7.2
Alaska	78	3.8	7.7	1.3	5.1	17.9	10.3	12.8	9.0	9.0	12.8	6.4	3.8
Arizona	833	7.7	7.4	8.8	7.8	8.6	8.9	6.7	8.6	10.3	8.0	7.7	9.4
Arkansas	485	6.0	6.0	8.7	6.6	8.2	8.7	10.5	9.9	9.1	8.0	10.5	7.8
California	4,930	6.9	7.6	7.1	7.3	8.9	9.5	8.9	10.5	8.6	8.5	8.3	7.9
Colorado	625	5.1	4.6	6.4	6.9	9.1	12.3	10.7	11.2	9.0	10.2	6.1	8.3
Connecticut	520	6.7	6.2	7.3	7.3	10.2	10.2	10.8	10.2	9.4	7.5	5.6	8.7
Delaware	135	4.4	5.9	5.9	8.9	8.1	9.6	8.1	11.9	12.6	5.9	6.7	11.9
District of Columbia	38	7.9	5.3	2.6	7.9	13.2	21.1	2.6	7.9	10.5	7.9	7.9	5.3
Florida	2,517	6.8	7.3	8.3	8.4	8.5	7.8	8.9	9.5	8.5	8.2	9.0	8.9
Georgia	1,348	7.2	7.7	7.6	7.5	8.8	9.1	8.8	10.2	6.5	8.7	8.8	9.1
Hawaii	167	7.2	7.2	9.6	10.8	9.0	9.6	9.0	4.8	7.8	7.2	8.4	9.6
Idaho	287	5.9	5.9	6.3	5.9	6.3	10.8	11.1	12.9	8.7	9.8	9.4	7.0
Illinois	1,771	5.9	5.4	6.5	8.0	8.6	11.0	9.9	10.7	8.9	9.1	7.7	8.3
Indiana	1,028	6.0	5.9	5.6	8.7	9.0	8.9	9.8	10.8	10.9	8.9	8.3	7.1
Iowa	541	8.9	7.0	6.7	6.7	7.4	8.5	9.4	11.5	10.7	7.8	8.1	7.4
Kansas	506	5.9	2.2	7.7	6.3	8.5	9.1	10.7	10.3	12.3	10.5	8.9	7.7
Kentucky	746	6.2	4.8	6.2	6.3	8.4	9.4	12.2	9.1	9.1	9.9	8.8	9.5
Louisiana	1,080	6.9	5.6	7.8	8.1	7.6	10.2	8.5	9.7	6.9	9.9	8.7	9.9
Maine	236	8.5	4.7	5.9	10.6	8.1	10.2	9.7	11.0	8.5	6.8	9.7	6.4
Maryland	682	7.6	5.1	6.9	8.9	7.0	7.3	10.7	11.7	8.1	8.9	9.7	7.9
Massachusetts	813	7.3	7.3	7.7	7.0	9.1	8.7	7.4	10.9	9.6	7.4	7.5	10.1
Michigan	1,561	6.5	7.4	6.0	6.9	8.7	9.2	8.5	10.5	10.0	8.8	7.6	9.9
Minnesota	742	5.0	3.4	4.3	8.5	10.0	10.0	11.6	10.6	9.4	9.3	8.9	9.0
Mississippi	603	6.1	7.5	7.5	6.8	8.0	8.1	11.4	10.9	8.6	8.1	9.5	7.5
Missouri	1,025	6.7	4.5	7.5	8.3	9.7	10.0	9.9	11.0	8.0	9.0	8.5	7.0
Montana	276	4.0	5.1	6.9	8.7	9.8	10.9	12.0	12.7	6.9	8.3	8.7	6.2
Nebraska	337	7.4	3.9	7.7	5.9	8.9	8.3	12.8	10.1	10.1	7.4	7.4	10.1
Nevada	302	6.0	5.6	10.6	8.6	9.9	8.3	9.3	9.6	8.6	7.9	8.6	7.0
New Hampshire	175	5.7	2.3	4.0	10.9	12.6	13.1	9.1	9.7	12.0	6.3	3.4	10.9
New Jersey	1,023	6.1	6.4	7.4	7.8	9.5	10.1	8.3	9.1	8.3	9.8	10.1	7.2
New Mexico	515	6.6	6.8	8.3	5.8	9.9	11.1	11.5	7.8	9.7	6.4	7.8	8.3
New York	2,374	6.8	6.9	6.5	7.2	9.4	9.1	9.6	10.1	8.6	8.3	8.1	9.0
North Carolina	1,327	6.9	6.6	6.6	8.2	7.3	9.8	9.1	12.0	8.2	7.6	8.9	8.7
North Dakota	133	5.3	2.3	3.8	5.3	10.5	2.3	14.3	14.3	11.3	13.5	9.0	8.3
Ohio	1,805	5.4	7.5	6.4	6.4	9.5	11.7	9.0	10.2	9.1	9.0	7.3	8.4
Oklahoma	820	7.2	6.0	6.7	7.6	9.8	9.4	10.0	10.4	8.0	8.8	8.2	8.0
Oregon	585	6.0	6.0	8.4	8.0	8.4	9.6	13.3	10.4	7.2	10.3	5.3	7.2
Pennsylvania	1,882	6.6	6.3	7.7	7.4	8.8	8.9	10.1	11.0	9.2	7.5	8.2	8.3
Rhode Island	118	7.6	4.2	8.5	7.6	8.5	10.2	8.5	7.6	13.6	6.8	11.0	5.9
South Carolina	747	7.6	4.7	7.4	6.6	7.9	10.4	9.5	8.7	9.6	8.8	9.5	9.2
South Dakota	188	5.3	4.8	5.9	8.0	11.2	12.8	5.9	11.2	14.4	4.8	7.4	8.5
Tennessee	1,008	6.7	6.3	6.9	7.5	8.8	9.5	9.6	11.8	9.5	7.5	8.9	6.7
Texas	3,814	7.3	7.3	8.2	6.4	8.2	9.1	9.0	10.5	8.3	8.4	8.5	8.6
Utah	291	6.2	4.5	7.6	8.9	8.2	10.0	9.3	8.6	10.0	9.6	8.6	8.6
Vermont	125	13.6	8.0	6.4	4.0	8.0	12.0	8.0	12.0	7.2	7.2	8.0	5.6
Virginia	938	7.6	5.3	5.8	6.4	9.4	9.1	9.9	11.4	8.8	9.9	7.8	8.6
Washington	847	7.4	6.8	6.8	7.8	9.0	8.7	12.4	10.7	7.2	9.1	7.1	6.8
West Virginia	457	7.7	4.6	6.1	7.7	8.3	11.2	9.6	14.7	8.1	7.4	6.8	7.9
Wisconsin	847	6.6	5.1	6.3	6.7	9.9	9.6	9.1	13.0	9.4	9.1	6.8	8.4
Wyoming	205	8.3	4.4	5.9	4.9	7.3	11.2	12.7	12.7	11.7	10.2	3.4	7.3
Total	**45,271**	**6.7**	**6.4**	**7.1**	**7.4**	**8.8**	**9.6**	**9.6**	**10.5**	**8.9**	**8.6**	**8.2**	**8.3**

Table 11 (51,077)

Percent Fatalities by Class Trafficway

State	Total Fatalities	Interstate	Other U.S. Routes	Other State Routes	County Road	Local Street	Other	Unknown
Alabama	940	7.3	21.8	24.0	27.8	19.0	0.0	0.0
Alaska	87	0.0	0.0	73.6	0.0	14.9	11.5	0.0
Arizona	947	12.5	15.2	13.4	15.0	40.3	3.6	0.0
Arkansas	587	7.2	29.1	43.4	10.1	10.2	0.0	0.0
California	5,496	9.3	4.4	25.1	23.9	36.9	0.4	0.0
Colorado	709	12.4	28.9	24.4	20.0	14.0	0.1	0.1
Connecticut	575	11.5	15.5	35.3	0.0	22.8	15.0	0.0
Delaware	153	6.5	32.7	30.1	25.5	5.2	0.0	0.0
District of Columbia	41	9.8	0.0	4.9	0.0	12.2	73.2	0.0
Florida	2,823	7.8	12.4	37.7	21.9	19.4	0.7	0.1
Georgia	1,508	10.6	17.2	34.0	24.6	12.7	1.0	0.0
Hawaii	186	8.1	0.0	62.9	23.1	0.0	5.9	0.0
Idaho	331	9.4	29.9	20.5	30.5	4.8	4.8	0.0
Illinois	1,969	7.3	9.4	44.0	15.8	23.1	0.4	0.0
Indiana	1,165	7.9	18.7	24.0	12.2	33.5	3.6	0.1
Iowa	626	6.1	24.8	22.0	17.4	4.8	24.9	0.0
Kansas	595	8.6	27.1	11.6	21.0	29.1	2.7	0.0
Kentucky	820	6.6	29.5	45.9	6.1	6.3	5.4	0.2
Louisiana	1,219	6.5	22.8	48.0	4.2	17.7	0.1	0.7
Maine	265	7.2	24.2	36.2	0.0	29.1	1.9	1.5
Maryland	756	9.8	9.9	39.2	20.0	5.2	8.9	7.1
Massachusetts	881	6.9	10.9	36.8	0.0	34.5	10.9	0.0
Michigan	1,750	7.2	8.5	19.9	53.5	6.7	4.2	0.0
Minnesota	848	4.1	18.4	27.9	34.4	10.8	3.9	0.4
Mississippi	695	6.3	29.4	34.4	13.8	7.5	4.0	4.6
Missouri	1,175	12.4	23.1	40.8	8.3	14.8	0.6	0.0
Montana	325	16.9	34.5	28.6	14.5	4.6	0.9	0.0
Nebraska	396	7.1	37.1	17.9	26.5	3.3	8.1	0.0
Nevada	346	20.8	30.6	17.1	13.3	9.2	9.0	0.0
New Hampshire	194	9.3	20.1	38.7	0.0	28.9	3.1	0.0
New Jersey	1,121	5.0	15.5	17.8	35.0	19.9	6.8	0.0
New Mexico	608	15.0	25.8	25.7	3.8	13.0	16.4	0.3
New York	2,610	5.0	6.2	33.6	18.0	9.2	27.9	0.1
North Carolina	1,503	5.1	20.6	20.0	37.5	16.8	0.1	0.0
North Dakota	151	4.0	23.8	23.8	31.8	13.9	2.6	0.0
Ohio	2,033	8.4	7.0	29.4	20.7	31.3	3.3	0.0
Oklahoma	959	10.2	29.1	19.6	12.0	18.0	10.9	0.1
Oregon	646	6.5	23.8	23.8	24.9	7.0	13.3	0.6
Pennsylvania	2,089	5.3	0.2	76.5	0.8	16.2	0.9	0.0
Rhode Island	129	10.9	7.0	51.9	3.1	17.1	9.3	0.8
South Carolina	852	6.2	27.5	62.6	3.4	0.0	0.4	0.0
South Dakota	228	4.4	28.9	29.4	32.0	4.8	0.0	0.4
Tennessee	1,154	12.1	27.9	21.8	10.9	9.2	18.0	0.0
Texas	4,366	14.2	22.3	37.1	6.6	19.8	0.1	0.0
Utah	334	14.7	0.0	53.3	1.5	26.3	3.9	0.3
Vermont	137	2.9	28.5	35.0	0.0	8.0	25.5	0.0
Virginia	1,045	8.2	33.4	23.0	27.8	6.8	0.8	0.0
Washington	971	9.7	12.8	27.0	32.5	14.6	3.4	0.0
West Virginia	516	3.9	32.6	41.7	12.2	7.2	2.5	0.0
Wisconsin	972	2.2	18.6	30.8	24.3	13.1	11.1	0.0
Wyoming	245	26.5	29.8	25.3	13.9	3.3	1.2	0.0
Total	**51,077**	**8.7**	**16.5**	**32.9**	**18.2**	**18.5**	**4.9**	**0.2**

IV. Accidents

The term "accident" as it applies to FARS includes three essential facets: (1) it must involve one or more motorized vehicles and their load in motion on a roadway which is open to the public and ordinarily used for motor vehicle travel ("motor vehicle in transport"); (2) it must involve one or more motor vehicles in transport in a set of events not under human control leading directly to the occurrence of a person fatality within 30 days ("fatal motor vehicle accident"); and (3) it must not directly result from "an act of God" such as an earthquake, flood, or torrential rain, the discharge of a firearm or explosive device, deliberate intent such as an attempted suicide or homicide, an aircraft or watercraft accident, and any injury-producing or property-damaging event involving a railway train prior to the involvement of a motor vehicle in transport.

The number of fatal accidents in 1980 marked a 0.1 percent increase over 1979. A summary of these accidents by their first harmful event is given in Figure 11. Separate figures are provided depending on the number of vehicles involved. As in 1979, more than 60 percent of these accidents involved a single vehicle. Multi-vehicle accidents comprised the remainder of the accidents with collision of two or more motor vehicles being overwhelmingly the most frequent first harmful event. For these accidents, the manner of collision is provided in Figure 11c.

In single vehicle accidents, the most frequent first harmful event was a collision with a person in the nonoccupant class, a subgroup of the "objects not fixed" group. Nonoccupants includes pedestrians, pedalcyclists and others not in or upon a motor vehicle in transport. The majority of these are pedestrians. The next most frequent first harmful event shown in Figure 11a was noncollision although the aggregate of the fixed object group is 48.1 percent. Note that the category "other objects not fixed" includes railway trains, animals, and parked motor vehicles. The category "other fixed objects" includes buildings, curbs or walls, dividers, fences, light supports, sign posts, other poles or supports, and impact attenuators.

In multiple vehicle accidents, the most frequently reported first harmful event was a collision of two or more motor vehicles in transport (94.9 percent). Angle collisions constituted the most frequent manner in which these accidents occurred, followed by head-on collisions. In Figure 11b, the "other" category includes railway trains, animals, parked motor vehicles, and unknown first harmful events. The "other" category of Figure 11c includes rear-to-rear collisions and unknown manners of collision.

The remainder of this chapter is divided into two sections. The first section highlights the vehicle mix in collisions and subsequent occupant fatalities. The second section examines the distribution of highway and other environmental factors that existed at the time of the fatal accidents.

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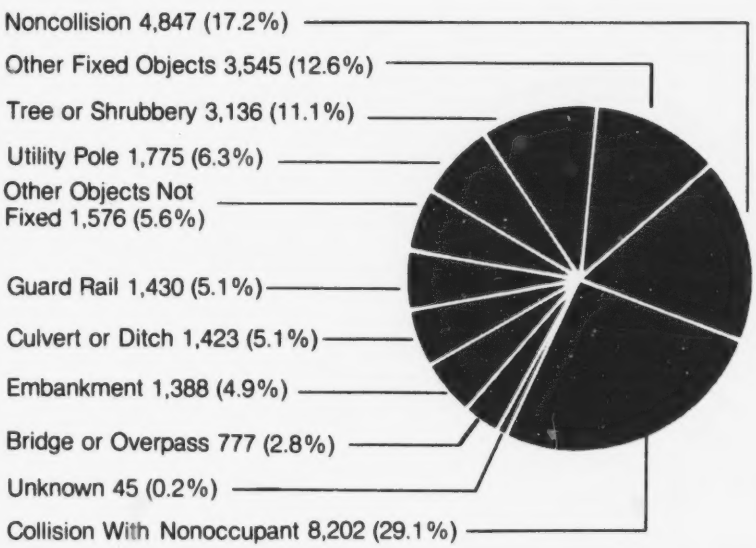
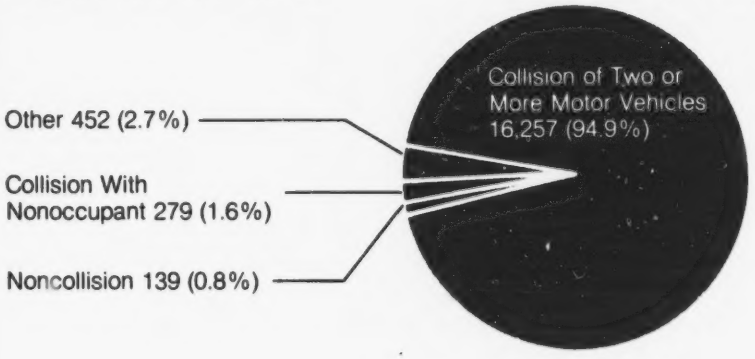
Figure 11 (28,144)

Distribution of Fatal Accidents by First Harmful Event

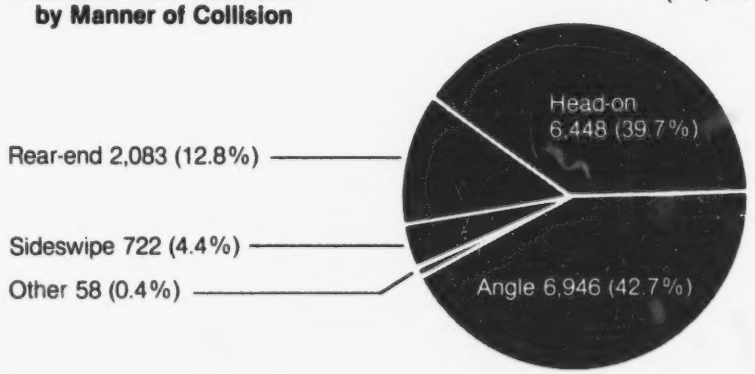
a. Single Vehicle Accidents


Noncollision 4,847 (17.2%)
Other Fixed Objects 3,545 (12.6%)
Tree or Shrubbery 3,136 (11.1%)
Utility Pole 1,775 (6.3%)
Other Objects Not Fixed 1,576 (5.6%)
Guard Rail 1,430 (5.1%)
Culvert or Ditch 1,423 (5.1%)
Embankment 1,388 (4.9%)
Bridge or Overpass 777 (2.8%)
Unknown 45 (0.2%)
Collision With Nonoccupant 8,202 (29.1%)

b. Multi-Vehicle Accidents (17,127)



c. Multi-Vehicle Accidents by Manner of Collision (16,257)



Section A. Collision

Having discussed single vehicle and multiple vehicle fatal accidents, subdivided by their first harmful event, a breakdown of these accidents by the manner of collision expressed as percentages of the total number of accidents is presented in Figure 12. The corresponding percentages of occupant fatalities are also presented.

As displayed in Figure 12, 62.2 percent of all fatal accidents were single vehicle collisions accounting for 51.4 percent of the occupant fatalities. In multiple vehicle accidents, the most frequently reported manner of collision was "angle" impact (15.3 percent of all fatal accidents). Angle impact collisions accounted for 19.1 percent of all occupant fatalities. The "Other" category refers to rear-to-rear collisions and unknown manner of collision in the FARS file.

There is some proportion of nonoccupant fatalities associated with single and multiple vehicle accident types. These are not included in the fatality counts.

Table 12 presents the mix of vehicle types for the 23,764 two vehicle fatal accidents in the 1980 FARS file. This table is strictly confined to those fatal accidents which involved two vehicles; that is, accidents involving a nonoccupant and two vehicles for example, were excluded.

The "Unknown" category refers to vehicles of unknown type in the FARS file. The Glossary contains a more complete description of the vehicle body types included in each generic vehicle type category.

The "Total" column of Table 12 is derived for a particular vehicle class by first summing down under the class and then across the class. An example of this is shown for the Bus class. The sum of all the numbers between the lines equals the total, 134.

Passenger car/passenger car fatal accidents comprised the single largest two vehicle accident types with 22.3 percent. The next highest mix of vehicle types in two vehicle accidents was the passenger car/light truck accidents with 12.2 percent. In fact, passenger cars were at least one of the vehicles in two vehicle accidents a total of 51.8 percent of the time.

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Figure 12
Accidents and Occupant Fatalities by Manner of Collision

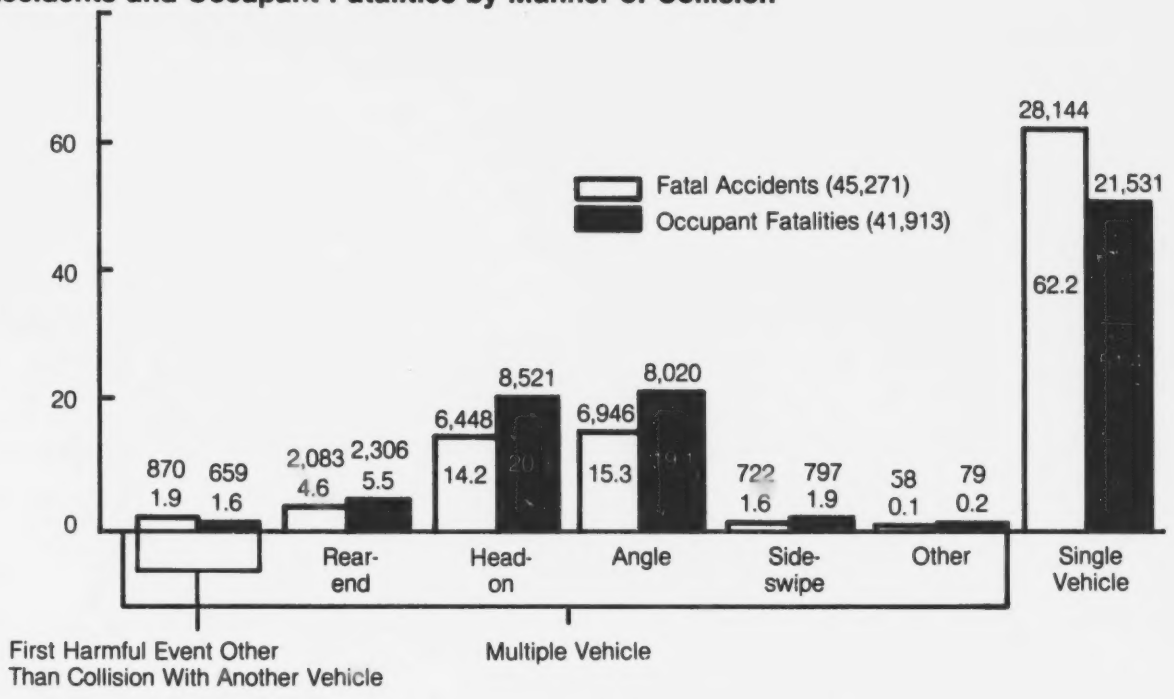

Table 12 (23,765)
Vehicle Mix in Two-Vehicle Fatal Accidents

	Passenger Car	Motor-cycle	Other Motorized Cycles	Bus	Special Vehicle	Light Truck	Medium Truck	Heavy Truck	Unknown Truck	Unknown	Total
Passenger Car	5,297	1,477	66	92	297	2,906	404	1,653	26	105	12,323
Motorcycle	70		3	16	58	568	72	167	4	11	2,446
Other Motorized Cycles	4			0	3	42	6	6	0	0	130
Bus	0				2	18	1	4	0	1	134
Special Vehicle	6					109	9	47	1	5	537
Light Truck	435						86	529	6	30	4,729
Medium Truck	10							46	1	3	638
Heavy Truck	133								1	17	2,603
Unknown Truck	2									0	41
Unknown	12										184

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Perhaps more important than the vehicle mix picture in fatal accidents are the resulting fatalities to the occupants. Table 13 presents the distribution of vehicle occupant fatalities by the type of vehicle in which they were riding. Also indicated is the other type of vehicle involved. Similar to the previous table, the fatality counts are restricted to those resulting from accidents involving two vehicles only. The types of vehicle in which the fatality occurred are listed in the column headings and the other vehicle types involved are listed by rows. For example, to find the number of light truck occupant fatalities when the other vehicle is a heavy truck, one would go down the column headed "Light Truck" to the row labeled "Heavy Truck" and find 603 occupant fatalities.

In two-vehicle collisions, occupant fatalities were greatest in passenger cars, motorcycles and light trucks. The overwhelming majority of fatal accidents involving motorcycles resulted in the death of a motorcycle rider, while collisions involving a truck and another vehicle usually resulted in the death of an occupant of the other vehicle. There were only 11 bus occupant fatalities and eight of these were the result of collisions with a heavy truck.

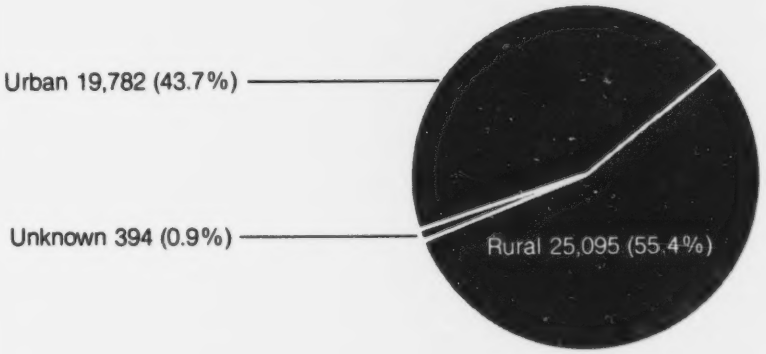
Table 13 (18,123)

Occupant Fatality Mix in Two-Vehicle Fatal Accidents

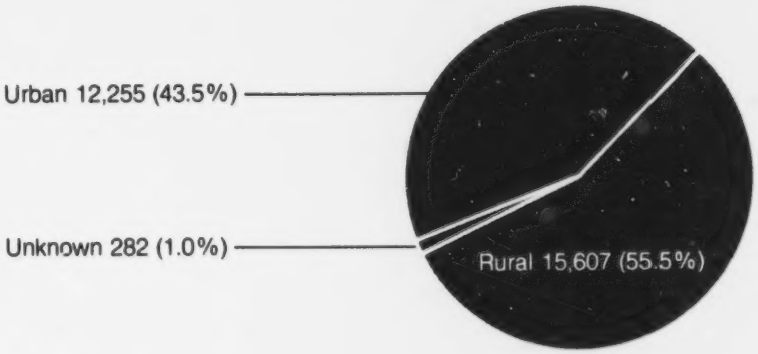
	Type of Vehicle in Which Fatality Occurred										
Other Vehicle in the Accident	Passenger Car	Motorcycle	Other Motorized Cycles	Bus	Special Vehicles	Light Truck	Medium Truck	Heavy Truck	Unknown Truck	Unknown	Total
Passenger Car	6,694	1,540	68	3	110	969	23	57	2	59	9,525
Motorcycle	25	80	3	0	0	3	0	0	0	0	111
Other Motorized Cycle	0	0	4	0	0	1	0	0	0	0	5
Bus	107	17	0	0	2	25	1	1	0	2	155
Special Vehicle	269	64	3	0	7	57	1	4	0	3	408
Light Truck	2,680	611	43	0	72	516	8	31	2	29	3,992
Medium Truck	473	77	7	0	9	90	10	11	1	2	680
Heavy Truck	2,002	184	7	8	58	603	42	161	2	17	3,084
Unknown Truck	30	4	0	0	1	4	0	0	6	0	45
Unknown	70	13	0	0	3	13	1	1	0	17	118
Total	**12,350**	**2,590**	**135**	**11**	**262**	**2,281**	**86**	**266**	**13**	**129**	**18,123**

Figure 13
Fatal Accident Environment

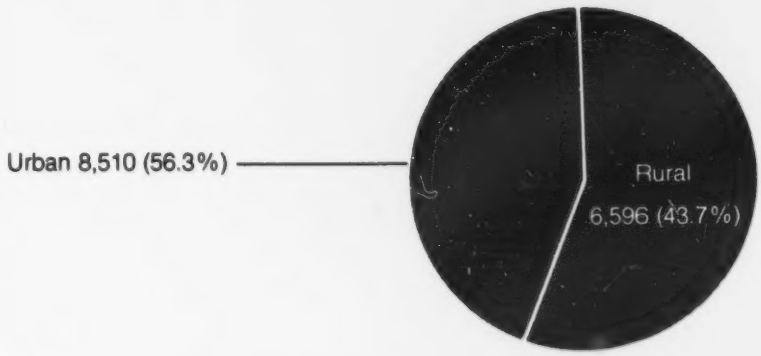
a. Land Use (45,271)



b. Land Use—Single Vehicle Accidents Only (28,144)



c. Total Vehicle Miles of Travel (100 Million)



Section B. Highway and Environment Factors

An important aspect of a fatal accident is the environment surrounding the event. This section examines fatal accidents by various highway and environmental factors such as location of the accident, light and weather conditions, and type of objects with which the vehicles collided.

As in 1979, the FHWA figures indicated that more than half (56.3 percent) of the 1980 estimated vehicle miles of travel (VMT) (Figure 13c) were in urban areas, although less than half (43.7 percent) (Figure 13a) of the fatal accidents occurred in these areas. This corresponds to a fatal accident rate of 2.32 accidents per 100 million VMT in urban areas as opposed to a rate of 3.80 in rural areas. In the 28,144 single vehicle accidents (Figure 13.6), 43.5 percent of the fatal accidents occurred in urban areas.

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Figure 14 shows most fatal accidents occurred on roadways with a 55 mph speed limit. The percentage of these occurrences (44.9 percent) was more than twice that of the next highest representation, the 30 and 35 mph speed limits. Rural areas dominated the frequency of accidents on roadways with a 55 mph limit whereas urban areas dominated in the 30 and 35 mph category.

Figure 15 presents the accident experience for all accidents and single vehicle only accidents by class trafficway. Class trafficway is an important factor to consider in the set of highway factors because it provides insight into the distribution of roadway types and their representation in the overall traffic accident picture. The "Other" category in class trafficway includes some roadways which are limited access facilities or other major arteries not in any other category. Both Figures 15a and 15b have similar distributions of accidents. The largest differences occur on county roads and local streets with single vehicle accidents being more frequent when compared to all fatal accidents. This is due to the more likely occurrence of fatal accidents on these class trafficways between pedestrians or pedalcyclists and a single vehicle.

Figure 14 (45,271)

Fatal Accidents by Land Use and Speed Limit

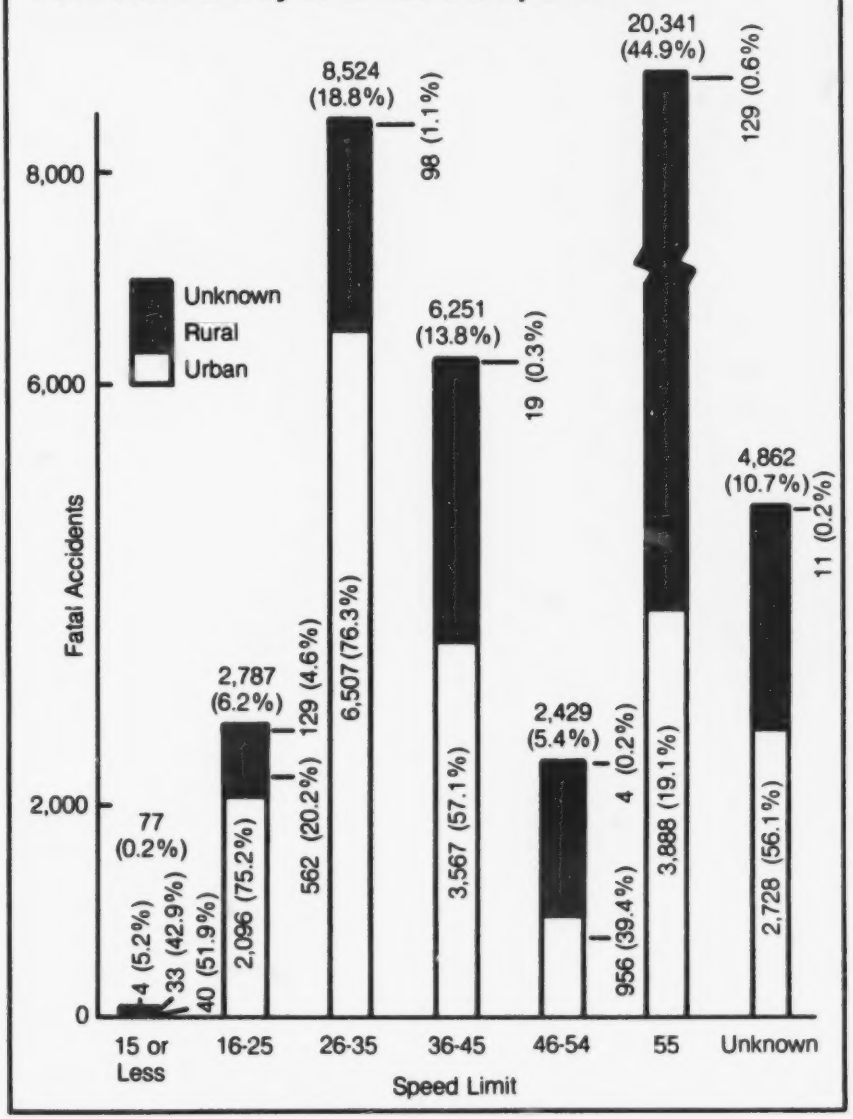

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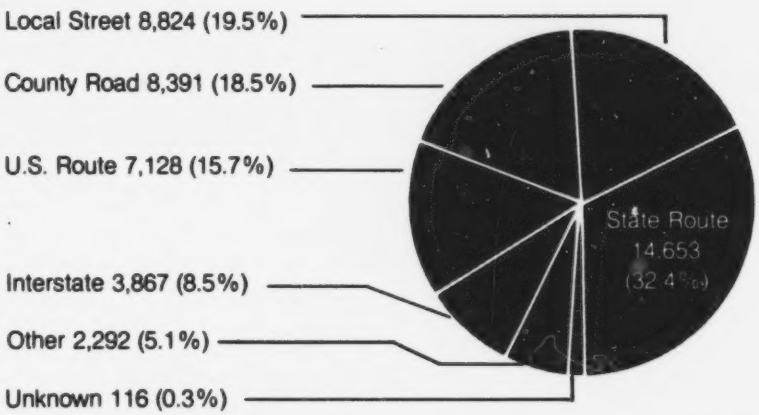
Figure 15
Class Trafficway

a. All Accidents (45,271)



b. Single Vehicle Accidents Only (28,144)

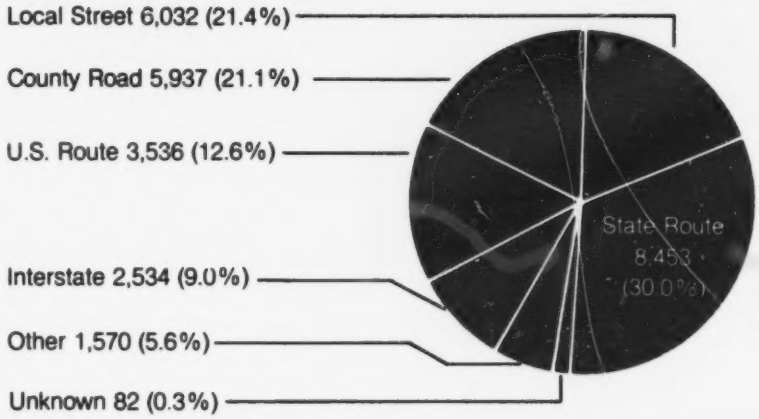


Table 14 lists vehicle types involved in fatal accidents by class trafficway. Overall, state routes account for the greatest proportion of vehicle involvements (33.6 percent). Eighty-four percent of heavy truck involvements are on the Interstate System, U.S. routes and state routes. It may be speculated that this is because the majority of heavy truck mileage is on these road systems. The FHWA estimates that 19.2 percent of the vehicle miles traveled in the U.S. were on the Interstate System. Yet, the Interstate System accounted for only 8.6 percent of the vehicles involved in fatal accidents. Because of the lack of exposure data it is not possible to compare this rate to other road systems at this time.

Table 14 (63,467)
Vehicle Types Involved in Fatal Accidents by Class Trafficway

Class Trafficway	Passenger Cars		Motorcycles		Buses		Light Trucks		Medium Trucks		Heavy Trucks		Other and Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Interstate	3,129	8.0	240	4.8	16	4.8	872	7.6	87	8.0	983	23.0	136	6.1	5,463	8.6
U.S. Rt.	6,487	16.6	523	10.4	50	15.2	2,176	19.0	208	19.0	1,262	29.5	328	14.6	11,034	17.4
State Rt.	13,246	33.9	1,479	29.5	81	24.6	3,959	34.5	391	35.8	1,373	32.1	807	35.9	21,335	33.6
County Rd.	6,619	17.0	1,033	20.6	41	12.4	2,203	19.2	203	18.6	275	6.4	495	22.0	10,869	17.1
Local St.	1,480	19.2	1,446	28.9	117	35.4	1,773	15.4	151	13.8	239	5.6	352	15.7	11,558	18.2
Other	2,002	5.1	273	5.4	25	7.6	450	3.9	46	4.2	141	3.3	120	5.3	3,057	4.8
Unknown	76	0.2	14	9.3	0	0.0	40	0.4	6	0.6	7	0.2	7	0.3	150	0.2
Total	**39,039**	**100.0**	**5,008**	**100.0**	**330**	**100.0**	**11,473**	**100.0**	**1,092**	**100.0**	**4,280**	**100.0**	**2,245**	**100.0**	**63,467**	**100.0**

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A tabulation of the 614 fatal motor vehicle accidents in and around work zones by class trafficway is presented in Table 15. Most of the accidents occurred on the Interstate System (28.5 percent) and other state routes (27.2 percent). These two systems alone accounted for more than half of those accidents in construction zones.

Changing now from the type of roadway to the location within the trafficway, Figure 16 shows that most accidents occurred away from roadway junctions (72.7 percent). The majority of roadway junctions at which accidents occurred were intersections. The stop sign was the control device most often present at intersections where fatal accidents occurred. No controls and traffic signals followed closely in frequency of presence. Most of the 623 rail-highway grade crossing accidents occurred at crossings where the only control device was other than gates, signals, or watchmen to alert motorists to on-coming trains (physically controlled) or a stop sign for the railroad crossing.

Figure 17 depicts 58.7 percent of the accidents occurred on the roadway, down more than two percentage points from 1979. However, the frequency of roadside accidents increased by more than six and a half percentage points from 1979 to almost a quarter of all accidents. These are accidents occurring off the roadway but inside the right-of-way. The incidence of accidents on shoulders, the area contiguous to the roadway, decreased 4.4 percentage points to 5.4 percent of the accidents. Accidents occurring off the roadway are included in the FARS file if a set of events involving the loss of control of a motor vehicle began on the roadway.

Figure 16
Fatal Accident Environment

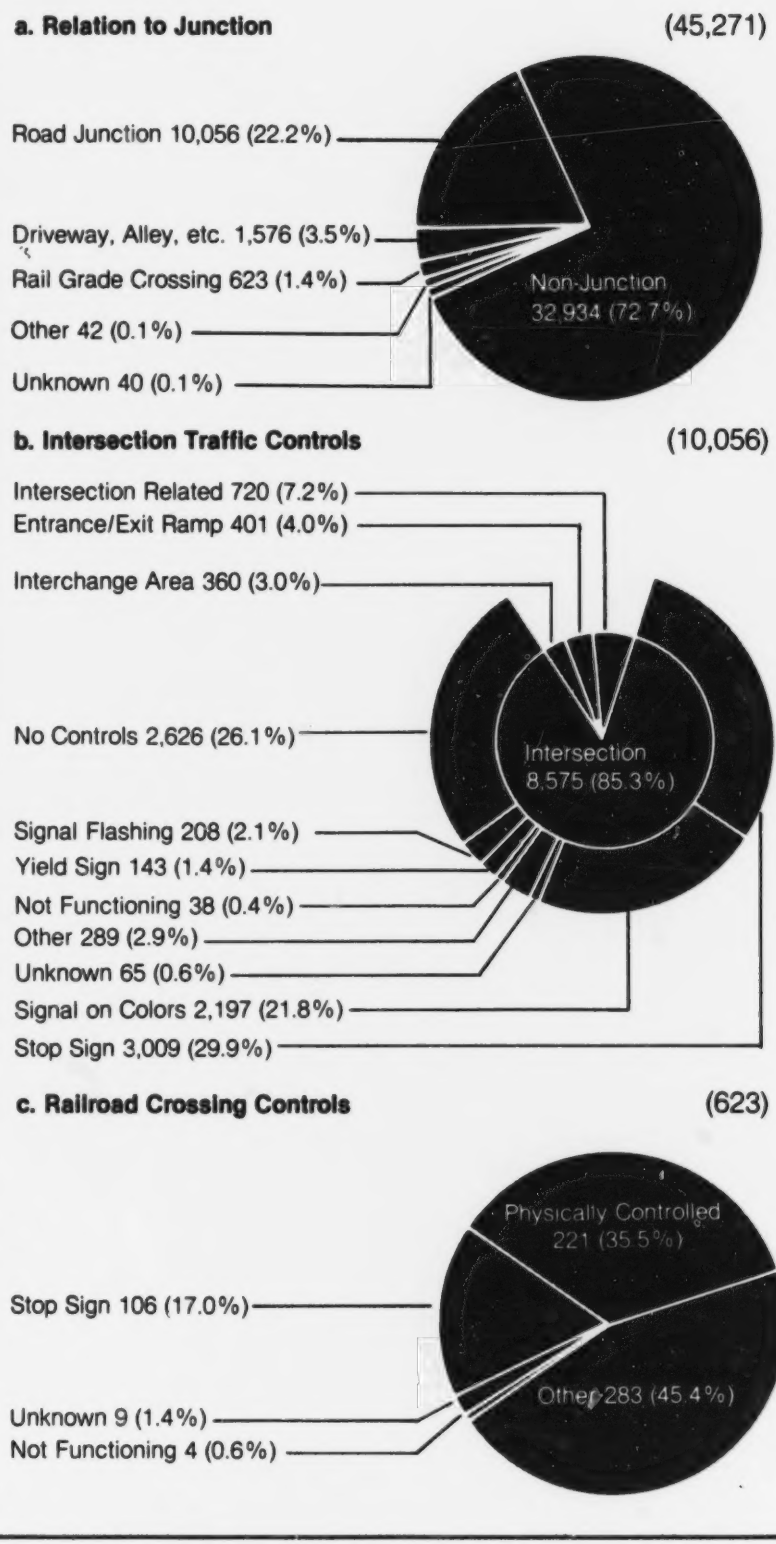

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Table 15 (614)

Fatal Accidents in Construction/Maintenance Zones

Class Trafficway	Construction	Maintenance	Construction or Maintenance	Total
Interstate	139	24	12	175
Other U.S. Route	93	17	6	116
Other State Route	129	26	12	167
County Road	33	18	5	56
Local Street	56	8	10	74
Other	14	5	6	25
Unknown	1	0	0	1
Total	**465**	**98**	**51**	**614**

Figure 17 (45,271)

Relation to Roadway

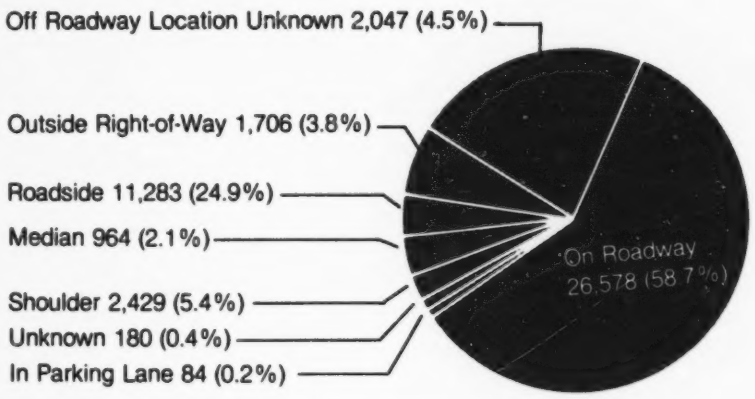

Figure 18 presents the distribution of fatal accidents by atmospheric, light and roadway surface conditions. Fatal accidents most often occurred during normal weather regardless of lighting condition. For example, normal weather is associated with 89.0 percent of the fatal accidents occurring during daylight (Figure 18a).

Another comparison involving atmospheric conditions is presented in Figure 18b. Shown here is the number and percent of fatal accidents for each combination of atmosphere (as one representation of visibility) and roadway surface condition. The combination that is associated with the highest count of fatal accidents is normal weather and dry surface (82.9 percent).

Wet, snow, ice, or slush were present on the roadway during rain, snow, or sleet when almost 10 percent of the fatal accidents occurred.

The "Other" atmospheric condition includes fog, smog, smoke, and blowing sand or dust. The term "normal" denotes no adverse weather conditions. The "Other" light condition includes dark but lighted, dawn, and dusk. The "Other" roadway surface condition includes sand, dirt, and oil.

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Figure 18
Atmospheric Conditions in Fatal Accidents

(45,271)

a. By Light Conditions

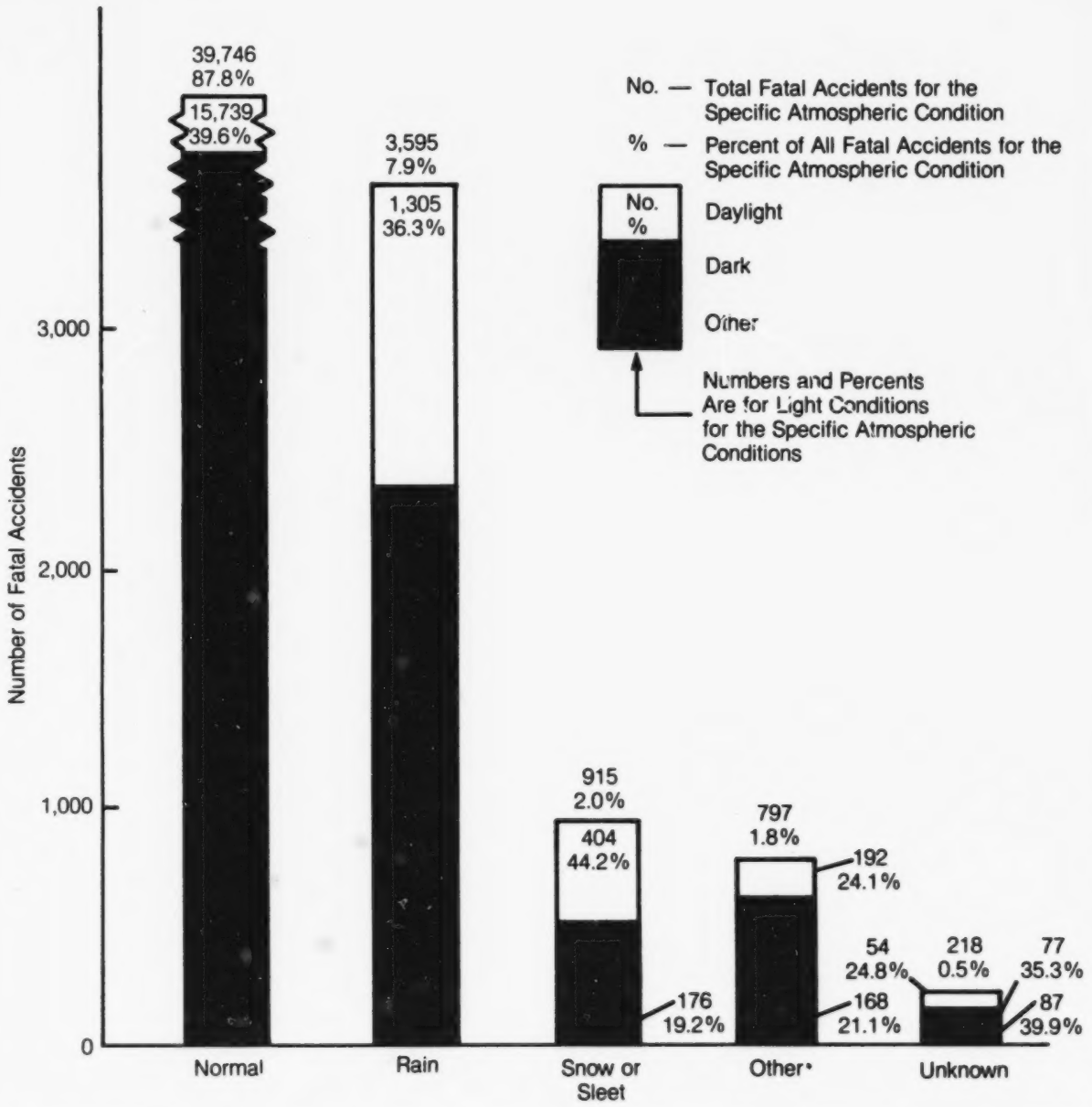

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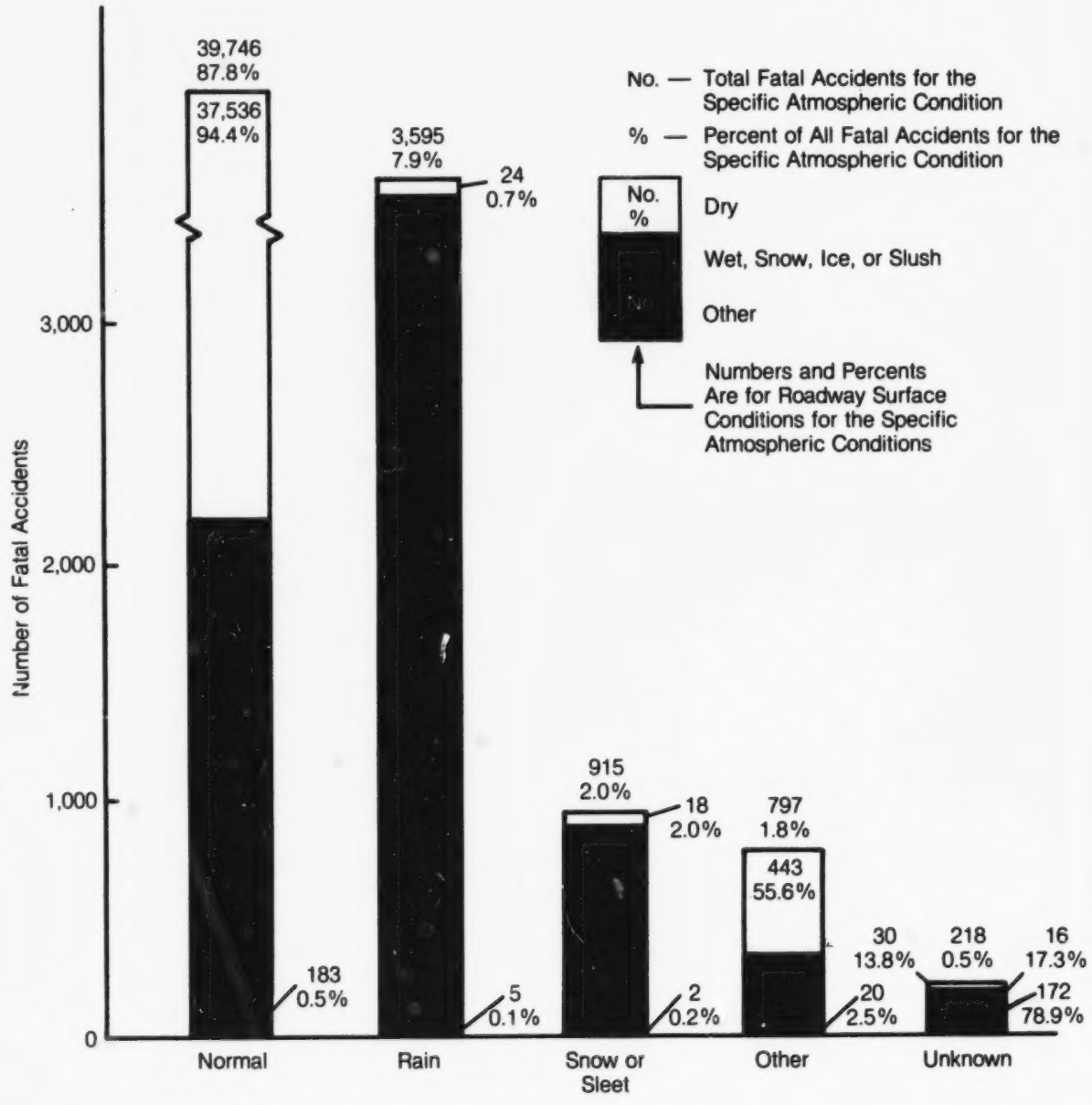
Figure 18 (45,271)

Atmospheric Conditions in Fatal Accidents

b. By Roadway Surface Conditions



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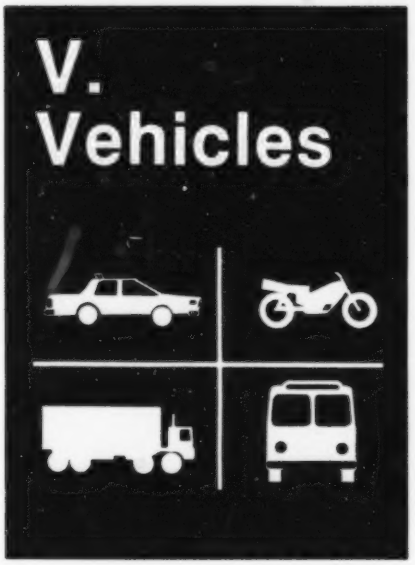
V. Vehicles



The 45,271 fatal accidents in 1980 involved 63,467 motor vehicles; 2.0 percent fewer vehicles than in 1979. Unfortunately, this decrease represented virtually no change in occupant fatalities. This may be reflective of the general trend in downsizing of vehicles.

As an overview, Table 16 presents the number of vehicles, vehicle occupants, and associated occupant fatalities by vehicle type. Passenger cars were the most frequently involved vehicle type and accounted for the largest proportion of occupant fatalities. The next two most frequently involved vehicle types, associated with the next largest proportions of fatalities, were light trucks and motorcycles.

Note that motorcycles accounted for 6,222 of the 103,024 occupants. They also accounted for 4,960 of the 41,913 occupant fatalities. Therefore, motorcycles accounted for 6.0 percent of all occupants, but 11.8 percent of all occupant fatalities. Conversely, medium and heavy trucks together accounted for 6.1 percent of the occupants and only 3.0 percent of the occupant fatalities.

The number of occupant fatalities by the individual body types is presented in Appendix B.

Figure 19 contains a distribution of vehicles by most harmful event. Collisions with parked motor vehicles, animals, and trains are included in the

Table 16
Vehicles, Occupants and Occupant Fatalities in Fatal Accidents

Vehicle Type	Number of Vehicles Involved		Number of Occupants		Number of Occupant Fatalities	
	No.	%	No.	%	No.	%
Passenger Cars	39,039	61.5	66,702	64.7	27,433	65.5
Motorcycles	5,008		6,222		4,960	
Other Motorized Cycles	185		215		183	
Buses	330	0.5	987	1.0	46	0.1
Special Vehicles	412	0.6	675	0.7	248	0.6
Light Trucks	11,473	18.1	18,947	18.4	6,563	15.7
Medium Trucks	1,092	1.7	1,407	1.4	285	0.7
Heavy Trucks	4,280	6.7	4,882	4.7	976	2.3
Other	1,218	1.9	2,235	2.2	929	2.2
Unknown	430	0.7	752	0.7	290	0.7
Total	**63,467**	**100.0**	**103,024**	**100.0**	**41,913**	**100.0**

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"other fixed objects." Collision with motor vehicle in transport is a subgroup of objects not fixed and accounted for 51.9 percent of the most harmful events in fatal accidents. Collisions with highway appurtenances (i.e., divider, culvert or ditch, curb or wall, embankment, fence, light support, guard rail, sign post, utility pole, impact attenuator, and some portion of a bridge or overpass) were cited as the most harmful event for 9.4 percent of the vehicles, while other fixed objects (i.e., building, tree, and shrubbery) were cited for 6.7 percent of the vehicles.

Table 17 tabulates the most harmful events recorded for the 21,531 occupant fatalities in single vehicle accidents. Details are provided for the "collision with fixed object" group and summary data are presented for the "noncollision" and "collision with object not fixed" groups. All three groups are stratified by class trafficway and land use.

Trees and shrubbery were struck most frequently in both urban and rural areas. The next most frequently struck fixed objects in urban areas were utility poles. But, in rural areas, embankments were next highest frequency.

The remainder of this chapter examines various aspects of each of the major generic vehicle types: passenger cars, and light, medium and heavy trucks and the body type "motorcycles." In addition, the involvement of school bus related accidents is examined in detail to conclude the chapter.

Figure 19 (63,467)

Counts of Vehicles Involved in Fatal Accidents by the Most Harmful Event

Noncollision—10,155 (16.0%)

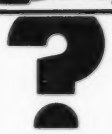
Collision With Nonoccupant 8,096 (12.8%)

Collision With Motor Vehicle in Transport—32,951 (51.9%)

Collision With Other Objects Not Fixed—1,506 (2.4%)

Collision With Highway Appurtenances—5,937 (9.4%)

Collision With Other Fixed Objects—4,245 (6.7%)



Unknown—577 (0.9%)

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Table 17 (21,531)

Most Harmful Event in Single Vehicle Occupant Fatalities by Land Use and Class Trafficway

(Numbers in Parentheses Are Subtotals and Are Not Included in the Total)

Most Harmful Event	Interstate	Other U.S. Route	Other State Route	County Road	Local Street	Other	Unknown	Total
Urban								
Non-Collision	405	216	453	313	775	129	6	2,297
Collision With Object Not Fixed	79	47	120	73	410	37	0	776
Collision With Fixed Object	(405)	(320)	(987)	(550)	(1,693)	(350)	(8)	(4,313)
Building	2	11	22	17	75	15	0	142
Culvert/Ditch	13	12	32	20	45	8	0	130
Curb/Wall	25	19	69	17	114	30	0	274
Divider	16	9	8	1	9	3	0	46
Embankment	17	8	35	13	39	3	0	115
Fence	6	2	11	10	29	2	0	60
Guard Rail	135	23	99	17	50	21	1	346
Light Support	15	10	41	9	80	11	0	166
Sign Post	16	11	19	8	38	4	1	97
Tree/Shrubbery	22	73	255	240	589	103	1	1,283
Utility Pole	22	86	262	156	444	94	4	1,068
Other Poles/Support	8	10	31	6	36	12	0	103
Impact Attenuator	1	0	0	0	3	0	0	4
Other	22	15	56	16	66	11	0	186
Bridge or Overpass								
Passing Under	42	19	18	5	40	27	0	151
Passing Over	41	11	28	15	33	6	0	134
Unknown	2	1	1	0	3	0	1	8
Rural								
Non-Collision	760	1,163	2,582	2,135	231	293	16	7,180
Collision With Object Not Fixed	103	95	160	277	84	42	1	762
Collision With Fixed Object	(347)	(855)	(2,423)	(1,794)	(316)	(270)	(11)	(6,016)
Building	0	8	17	23	6	2	0	56
Culvert/Ditch	19	91	203	156	22	17	1	509
Curb/Wall	12	19	27	22	13	6	0	99
Divider	5	2	4	0	0	3	0	14
Embankment	51	100	330	135	14	21	0	651
Fence	5	10	34	48	5	4	0	106
Guard Rail	95	59	169	58	5	13	0	399
Light Support	7	2	14	6	1	0	0	30
Sign Post	11	20	25	21	1	5	0	83
Tree/Shrubbery	37	272	972	879	179	138	7	2,484
Utility Pole	3	113	325	254	47	29	1	772
Other Poles/Support	9	14	26	18	3	2	1	73
Impact Attenuator	2	2	2	1	0	0	0	7
Other	15	42	102	72	10	12	1	254
Bridge or Overpass								
Passing Under	46	18	16	10	0	1	0	91
Passing Over	29	79	151	80	9	10	0	358
Unknown	1	4	6	11	1	7	0	30

Section A. Passenger Cars

Passenger cars comprised 61.5 percent of all vehicles involved in fatal accidents. This section reveals some of the interesting characteristics of this vehicle type.

Table 18 presents the contribution to the vehicle involvement and occupant fatality statistics of each vehicle body type included in the generic vehicle type "passenger car." The two-door sedan, hardtop, or coupe body type was most obvious in vehicle involvement and occupant fatalities with 59.4 percent and 61.2 percent, respectively, of the total. The next most frequently involved body type was the four-door sedan or hardtop (25.6 percent) accounting for 23.2 percent of the passenger car occupant fatalities.

Figure 20 shows a six year history of fatal accidents and fatalities involving the generic vehicle type "passenger cars." There were 39,039 passenger cars involved in 31,534 fatal accidents in 1980. These accidents resulted in 27,433 passenger car occupant fatalities, a decrease of 1.3 percent from the 1979 figure of 27,788.

Figure 21 presents a distribution of passenger cars in fatal accidents by most harmful event. A collision with a motor vehicle in transport was cited as the most harmful event for slightly more than 50 percent of the passenger cars in fatal accidents. Collisions with nonoccupants and noncollisions together accounted for another 28.2 percent of passenger cars. The next most frequently cited most harmful event, "collision with tree or shrubbery," involved nearly half the number of vehicles (6.7 percent) as did either the nonoccupant or noncollision groups. If all of the fixed objects are considered as a single category, they are cited more often than "collision with nonoccupant" or "noncollision."

Table 17 (Con't) (21,531)

Most Harmful Event in Single Vehicle Occupant Fatalities by Land Use and Class Trafficway

(Numbers in Parentheses Are Subtotals and Are Not Included in the Total)

Most Harmful Event	Interstate	Other U.S. Route	Other State Route	County Road	Local Street	Other	Unknown	Total
Unknown								
Non-Collision	0	0	1	3	10	3	4	21
Collision With Object Not Fixed	0	0	0	1	6	0	0	7
Collision With Fixed Object	(0)	(0)	(1)	(6)	(145)	(6)	(11)	(169)
Building	0	0	0	0	2	0	0	2
Culvert/Ditch	0	0	0	0	10	0	0	10
Curb/Wall	0	0	0	2	10	0	1	13
Divider	0	0	0	0	0	0	0	0
Embankment	0	0	0	0	20	2	0	22
Fence	0	0	0	0	0	0	0	0
Guard Rail	0	0	0	2	4	1	0	7
Light Support	0	0	0	0	0	0	0	0
Sign Post	0	0	0	0	0	0	0	0
Tree/Shrubbery	0	0	0	1	44	0	3	48
Utility Pole	0	0	0	1	30	0	4	35
Other Poles/Support	0	0	1	0	0	0	0	1
Impact Attenuator	0	0	0	0	0	0	0	0
Other	0	0	0	0	22	3	1	26
Bridge or Overpass								
Passing Under	0	0	0	0	0	0	0	0
Passing Over	0	0	0	0	3	0	1	4
Unknown	0	0	0	0	0	0	1	1
Total	**2,099**	**2,696**	**6,727**	**5,152**	**3,670**	**1,130**	**57**	**21,531**

"Other objects not fixed," which were cited for 2.3 percent of the passenger cars, refer to collisions with legally parked motor vehicles, railway trains, and animals. "Other fixed objects" includes those that have not already been specified such as dividers, buildings, impact attenuators, etc.

Each of the 27,433 passenger car occupant fatalities in 1980 can be classified by the point on the vehicle at which the principal impact occurred.

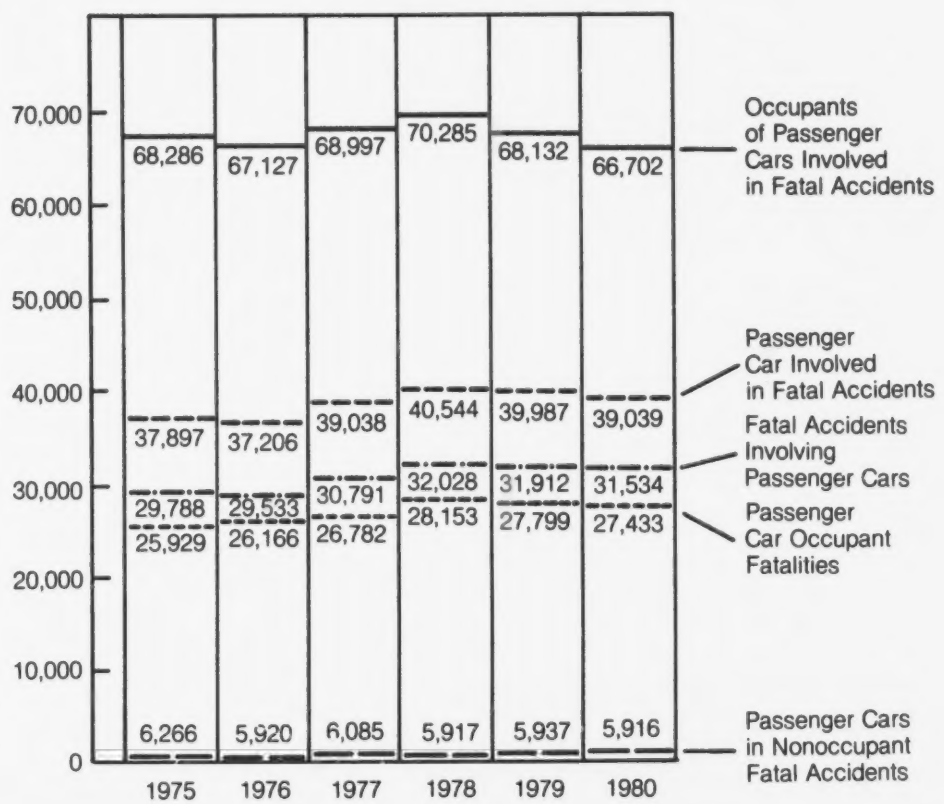
These points are arranged based on a clock face as shown in Figure 22. For this analysis, the following arbitrary groupings were made:

Frontal —clock points 11, 12, and 1
Rear —clock points 5, 6, and 7
Left side —clock points 8, 9, and 10
Right side—clock points 2, 3, and 4

Table 18
Number of Vehicles Involved and Occupant Fatalities by Body Type for Passenger Cars

Body Type	Vehicle Involvement		Occupant Fatalities	
	Number	Percent	Number	Percent
Convertible	479	1.2	400	1.4
2-Dr. Sedan, Hardtop, Coupe	23,197	59.4	16,803	61.2
4-Dr. Sedan, Hardtop	9,587	24.6	6,368	23.2
3-Dr., 5 Dr. Hatchback	693	1.8	592	2.2
Auto With Pickup Body	212	0.5	118	0.4
Station Wagon	2,941	7.5	1,925	7.0
Other Auto	25	0.1	25	0.1
Auto Type Unknown	1,905	4.9	1,202	4.4
Total	**39,039**	**100.0**	**27,433**	**100.0**

Figure 20
Passenger Car Involved Fatal Accidents and Related Fatalities for 1975 to 1980



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The impact points top, undercarriage and under ride are also presented in Figure 22. "Top" is properly recorded when the vehicle incurred damage from impacting its top against an object during the accident. Undercarriage is equivalent to top except refers to the underside of the vehicle. Under ride refers to a vehicle sliding under another vehicle during the course of an accident. The classic example is an automobile striking the rear-end or side of a tractor-trailer and coming to a stop under the truck. The principal point of impact for the automobile would be under ride, and for the truck, would be undercarriage. Noncollision data are also presented for completeness purposes. If the only event is an overturn, the accident is considered a noncollision. Hitting the ground, as when a vehicle rolls over and the side or top of the vehicle contacts the ground, is not considered as a collision and thus, impact point is not coded for this situation.

As defined here, frontal collisions were clearly associated with the greatest number of passenger car occupant fatalities (50.2 percent). Left and right side collisions were nearly equal in their associated occupant fatalities and, viewed together, show that side collisions were involved with the second largest proportion of passenger car occupant fatalities (27.9 percent).

Interestingly, 8.5 percent of the passenger occupant fatalities were associated with principal impacts on the top of the car. Another 7.6 percent were involved with noncollision events (e.g., overturn, gas inhalation, vehicle fire, immersion).

The 1980 fatality counts by EPA Size Class are presented in Table 19. The subcompact and compact size classes accounted for 13,009 (47.4 percent) of the passenger car fatalities. This is an increase from 1979 of 6.2 percent which is important when it is considered that passenger car fatalities, overall, decreased by 1.3 percent from 1979. The number of vehicles registered in each size class is not known at this time.

Figure 21 (39,039)

Distribution of Passenger Cars Involved in Fatal Accidents by Most Harmful Event

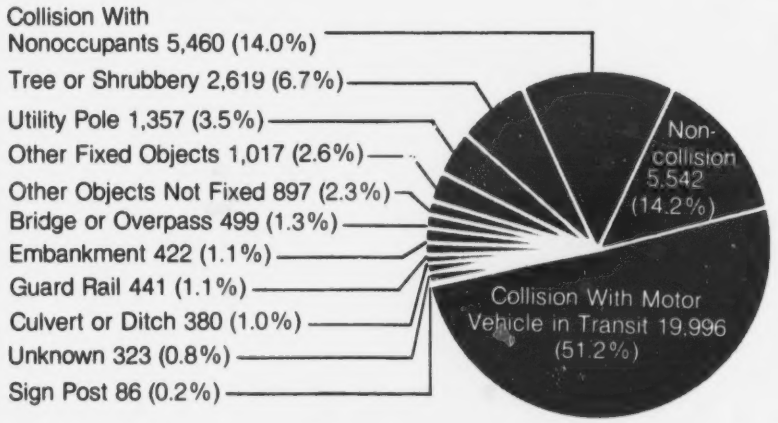
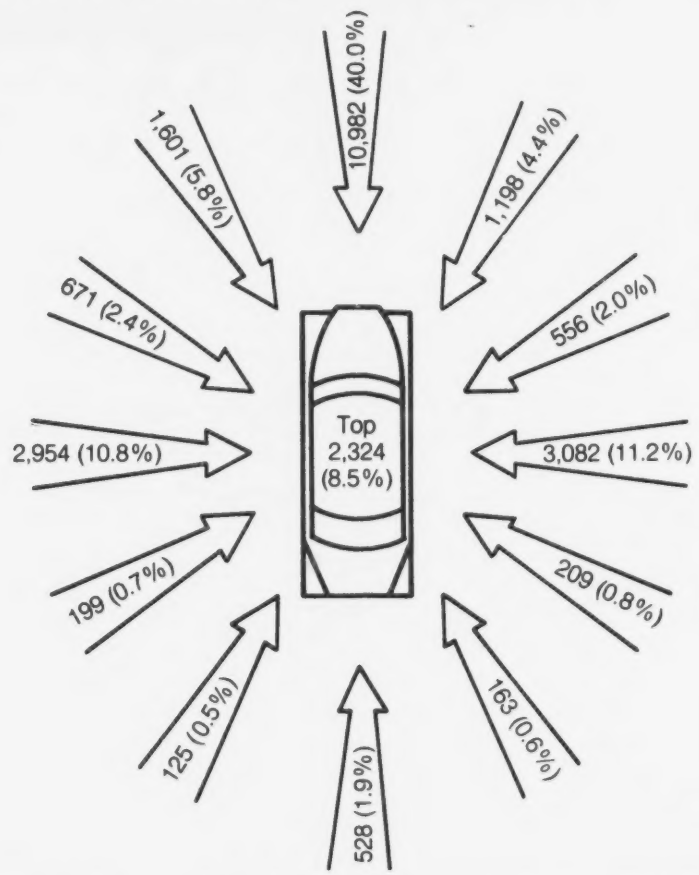

Collision With Nonoccupants 5,460 (14.0%)
Tree or Shrubbery 2,619 (6.7%)
Utility Pole 1,357 (3.5%)
Other Fixed Objects 1,017 (2.6%)
Other Objects Not Fixed 897 (2.3%)
Bridge or Overpass 499 (1.3%)
Embankment 422 (1.1%)
Guard Rail 441 (1.1%)
Culvert or Ditch 380 (1.0%)
Unknown 323 (0.8%)
Sign Post 86 (0.2%)
Non-collision 5,542 (14.2%)
Collision With Motor Vehicle in Transit 19,996 (51.2%)

Figure 22 (27,433)

Distribution of Passenger Car Occupant Fatalities by Principal Point of Impact



Undercarriage	140 (0.5%)	Noncollision	2,095 (7.6%)
Underride	74 (0.3%)	Unknown	532 (1.9%)

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Figure 23 presents the percent by model year of passenger car involvement in fatal accidents as compared to the percent by model year of passenger cars estimated to still be in operation as of July 1, 1980. The figure does not reflect the 143 passenger cars with a 1981 model year involved in accidents since they were introduced in September 1980 and are therefore not included in percentages. It appears that passenger cars which were nine or more years old were involved in fatal accidents a slightly greater proportion of time than they were represented in the total population in operation.

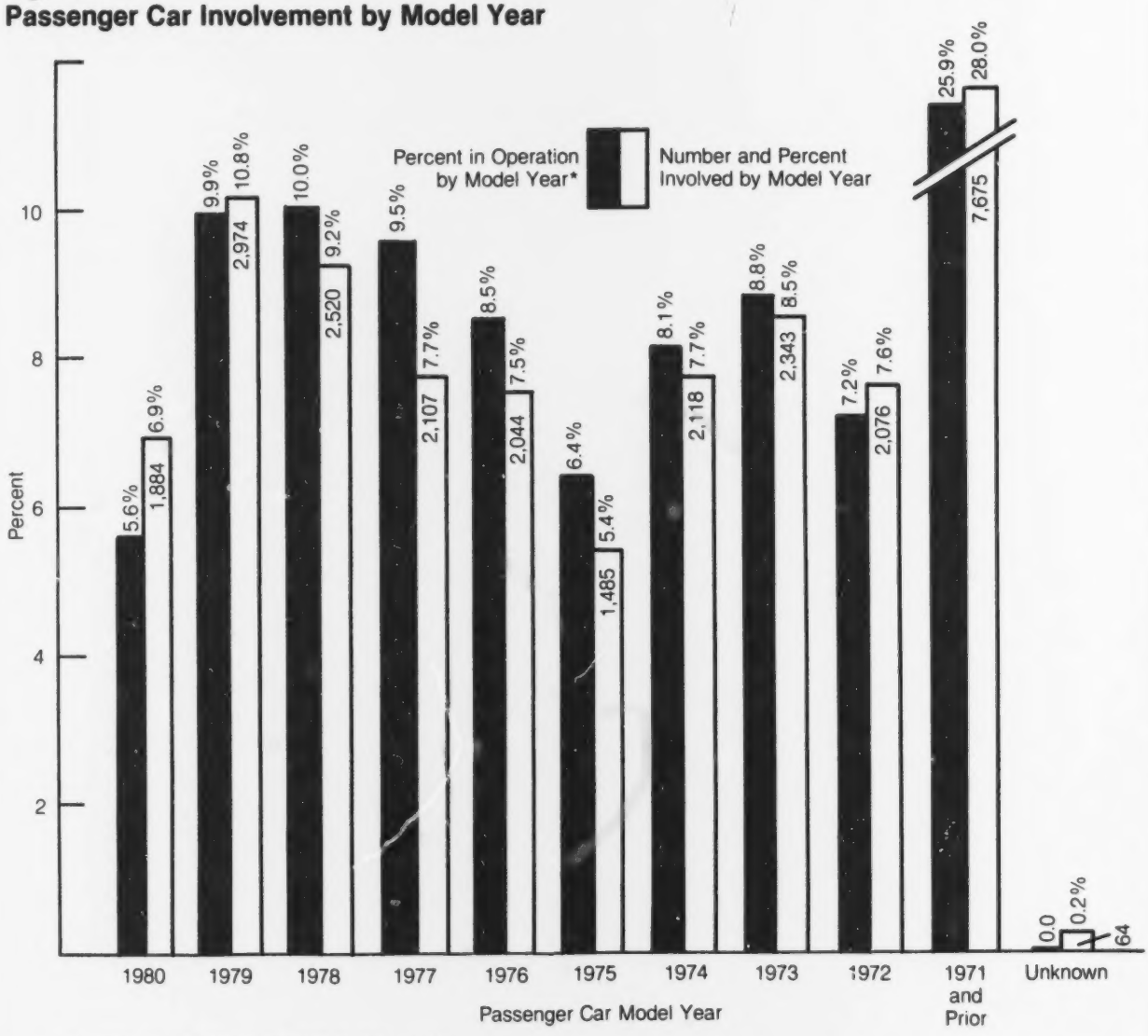
Table 19 (27,433)

Passenger Car Occupant Fatalities—1980 By EPA Size Class (Based on Interior Volume)

Size Class	Fatalities	Percent
Two Seater	1,079	4
Subcompact (less than 100 cubic feet)	7,059	26
Compact (100 to 109 cubic feet)	5,950	22
Mid-Size (110 to 119 cubic feet)	5,836	21
Full Size (more than 119 cubic feet)	6,916	25
Unknown and Other	593	2
Total	**27,433**	**100**

Figure 23

Passenger Car Involvement by Model Year



* Source: R.L. Polk and Company as of July 1, 1980

** The 1980 FARS files included 143 passenger cars with a 1981 model year. These are not included in this Figure.

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Section B. Motorcycles

The term "motorcycles" as used in this section does not include other types of motorized cycles such as mopeds, motorscooters, minibikes, and unknown type motorcycles (i.e., not specifically named in the FARS file). The total number of riders, rider fatalities, fatal accidents, and motorcycle involvements associated with mopeds, motorscooters, minibikes and unknown type motorcycles in addition to the motorcycles are listed in Table 20.

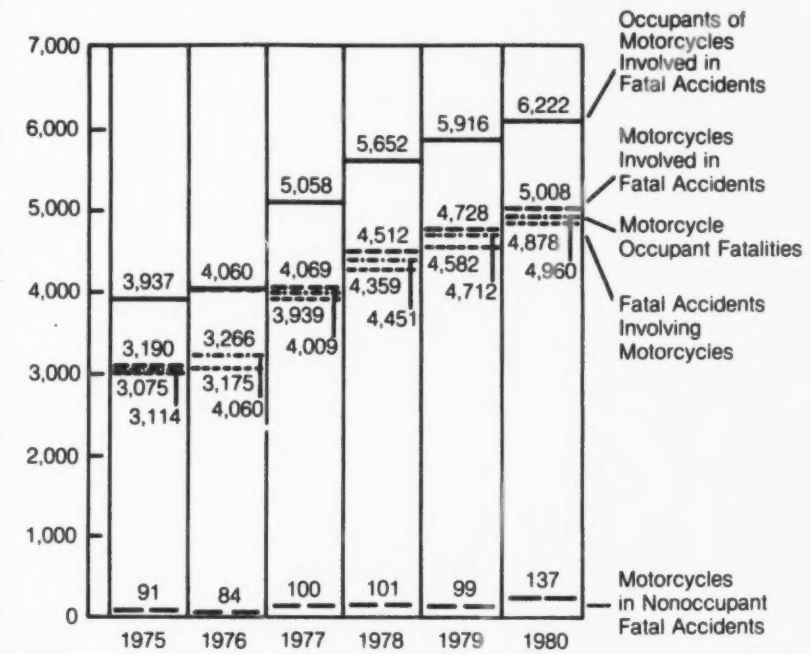
There were 4,960 motorcycle occupant fatalities in 4,878 fatal accidents involving 5,008 motorcycles. The six-year plot in Figure 24 shows that while fatal motorcycle accidents have been increasing since 1975, there is an especially sharp increase between 1976 and 1977. The number of rider fatalities in every year exceeds the number of fatal accidents. This is the only vehicle type examined for which this is true. Motorcycles are also the only vehicle type of the ones examined in this chapter to show a substantial increase in fatalities over 1979 (5.1 percent).

Figure 24 suggests that when a motorcycle is involved in a fatal accident, it is highly likely that at least one fatality is a motorcycle rider. This rate was 1.02 fatalities per fatal accident in 1980.

Table 20
Accidents and Fatalities by Motorcycle Body Types

		Motor-cycles	Mopeds	Other	Unknown	Total
Accidents	No.	4,878	120	43	17	5,058
	%	96.4	2.4	0.9	0.3	100.0
No. of Vehicles	No.	5,008	123	45	17	5,193
	%	96.4	2.4	0.9	0.3	100.0
Occupants	No.	6,222	134	56	25	6,437
	%	96.6	2.1	0.9	0.4	100.0
Occupant Fatalities	No.	4,960	118	44	21	5,143
	%	96.4	2.3	0.8	0.4	100.0

Figure 24
Motorcycle Involved Fatal Accidents and Related Fatalities for 1975 to 1980



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As with passenger cars, the majority (53.4 percent) of the motorcycles had collisions with motor vehicles in transport. This was cited as the most harmful event as shown in Figure 25. Motorcycles had collisions with "other fixed objects" which was cited for the largest proportion (8.3 percent) of the vehicle types examined in this chapter. This is more than three times the proportion for passenger cars (see Figure 21). As in accidents involving passenger cars, the single category "fixed objects" is cited more frequently for motorcycles than "noncollision."

Figure 26 shows that of the 4,960 motorcycle occupant fatalities in 1980, frontal impacts were even more marked than for passenger cars, with 70.2 percent involving frontal principal impacts. Only 7.5 percent of occupant fatalities were associated with noncollision events. This is the category which would include "overturn" and "fell from vehicle." Again, there is little difference between principal impacts to the left or right side as far as occupant fatalities are concerned.

Figure 25 (5,008)

Distribution of Motorcycles Involved in Fatal Accidents by Most Harmful Event

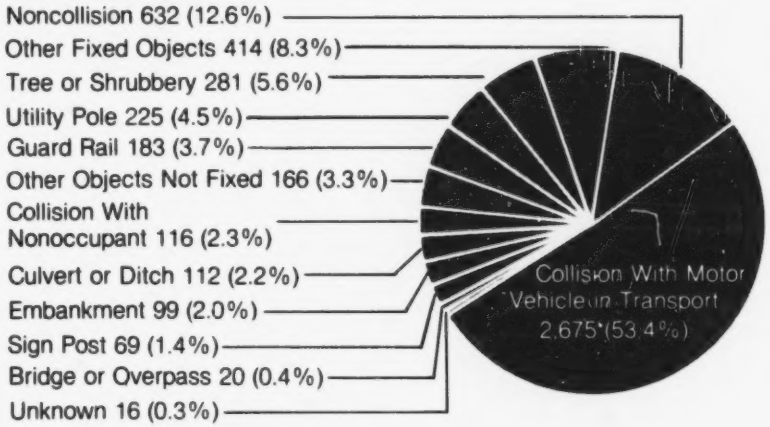
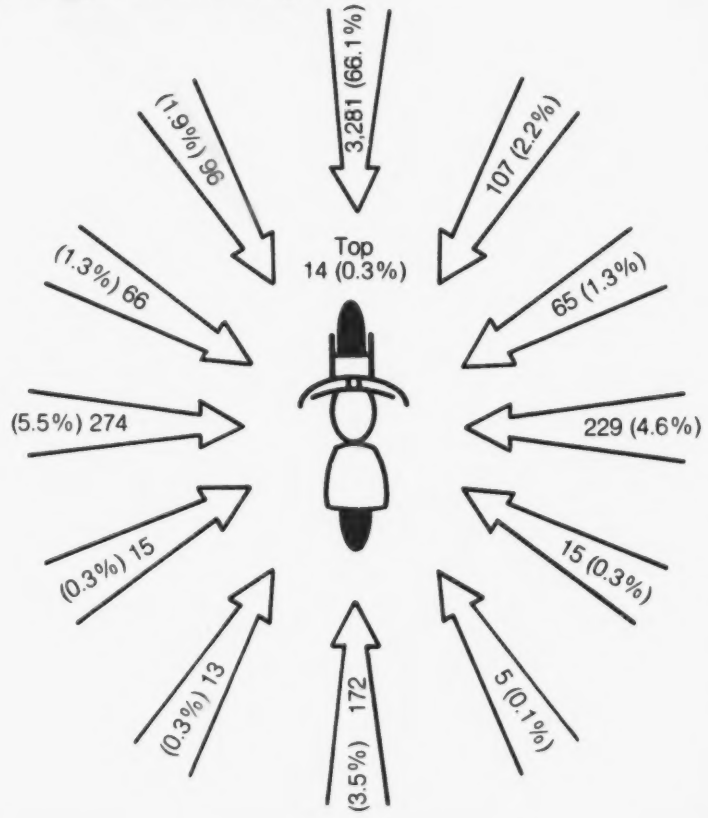

Noncollision 632 (12.6%)
Other Fixed Objects 414 (8.3%)
Tree or Shrubbery 281 (5.6%)
Utility Pole 225 (4.5%)
Guard Rail 183 (3.7%)
Other Objects Not Fixed 166 (3.3%)
Collision With Nonoccupant 116 (2.3%)
Culvert or Ditch 112 (2.2%)
Embankment 99 (2.0%)
Sign Post 69 (1.4%)
Bridge or Overpass 20 (0.4%)
Unknown 16 (0.3%)
Collision With Motor Vehicle in Transport 2,675 (53.4%)

Figure 26 (4,960)

Distribution of Motorcycle Rider Fatalities by Principal Point of Impact



Undercarriage	28 (0.6%)	Noncollision	374 (7.5%)
Underride	Not Applicable	Unknown	206 (4.2%)

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Section C. Light Trucks

This generic vehicle type includes pickup, van, and truck-based station-wagon body types. The breakdown of involvement and occupant fatalities by these body types is listed in Table 21. As can be seen, pickup trucks numbered more than four times greater than vans and accounted for more than five times the number of occupant fatalities.

Formerly, on/off road vehicles were identified in the light truck generic vehicle type. In 1980, the on/off road vehicle body type was placed with special vehicles. However, for comparison purposes, it is noted here that there were 1,129 such vehicles involved in fatal accidents resulting in 894 occupant fatalities.

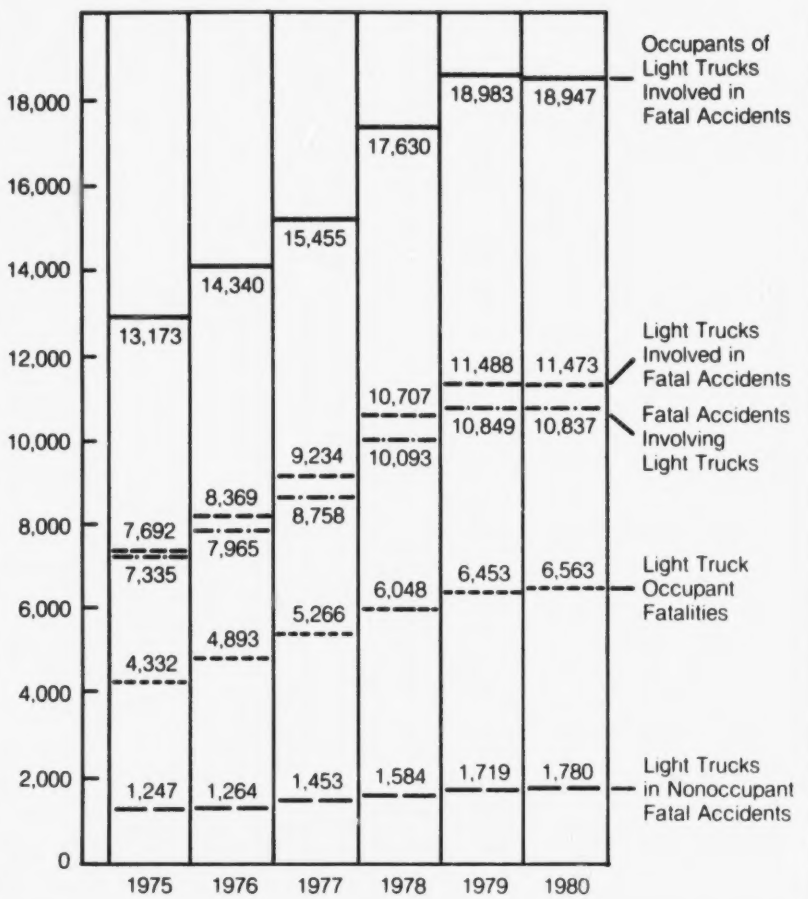
The six-year history of the number of fatal accidents and occupant fatalities associated with light trucks, presented in Figure 27, shows a steady increase since 1975. The largest percent increase (15.2 percent) occurred between 1977 and 1978.

In Figure 27, the 6,563 light truck occupant fatalities are slightly more than one quarter of the number for passenger cars. This 1.7 percent increase over 1979 represents a drastic rate reduction from the average 10.5 percent increase experienced every year since 1975. Significantly, the proportion of light truck occupant fatalities associated with noncollisions (21.7 percent) is 50 percent more than that for passenger cars.

Table 21
Number of Vehicles Involved and Occupant Fatalities by Body Type for Light Trucks

Body Type	Vehicle Involvement		Occupant Fatalities	
	Number	Percent	Number	Percent
Pickup	9,246	80.6	5,461	83.2
Van	2,040	17.8	999	15.2
Truck Based Station Wagon	187	1.6	103	1.6
Total	**11,473**	**100.0**	**6,563**	**100.0**

Figure 27
Light Truck Involved Fatal Accidents and Related Fatalities for 1975 to 1980



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The most harmful event cited for 48.8 percent of the 11,473 light trucks in 1980 fatal accidents as shown in Figure 28 was collision with a motor vehicle in transport. Noncollision events were cited for another 21.7 percent. Note that this category includes the following events:

- Fell from Vehicle
- Injured in Vehicle
- Overturn
- Fire/Explosion
- Gas Inhalation
- Immersion
- Other Noncollision

There were less than one third as many light trucks as there were passenger cars in fatal accidents in 1980. The proportion of light trucks for which collision with nonoccupant was cited (14.3 percent) in Figure 28 is the same proportion as that cited for passenger cars (see Figure 21).

The 11.3 percent of occupant fatalities associated with "top" principal impacts was the largest proportion for any vehicle so far examined. This is depicted in Figure 29.

Again, frontal principal impacts clearly accounted for the greatest number of occupant fatalities for this body type, with 49.3 percent associated with the three clock points that compose the frontal direction.

Figure 28 (11,473)

Distribution of Light Trucks Involved in Fatal Accidents by Most Harmful Event

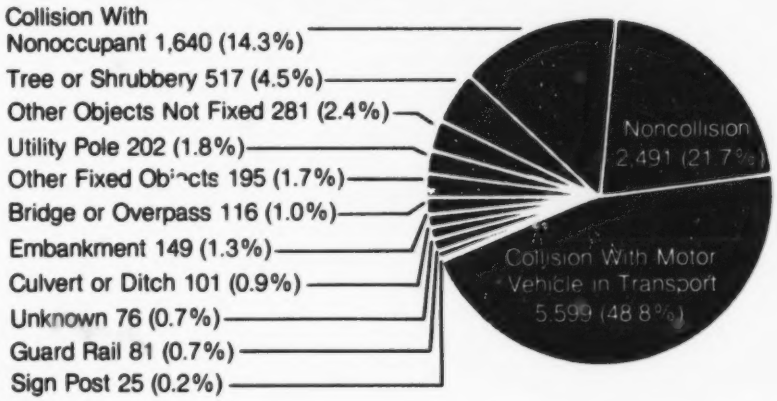
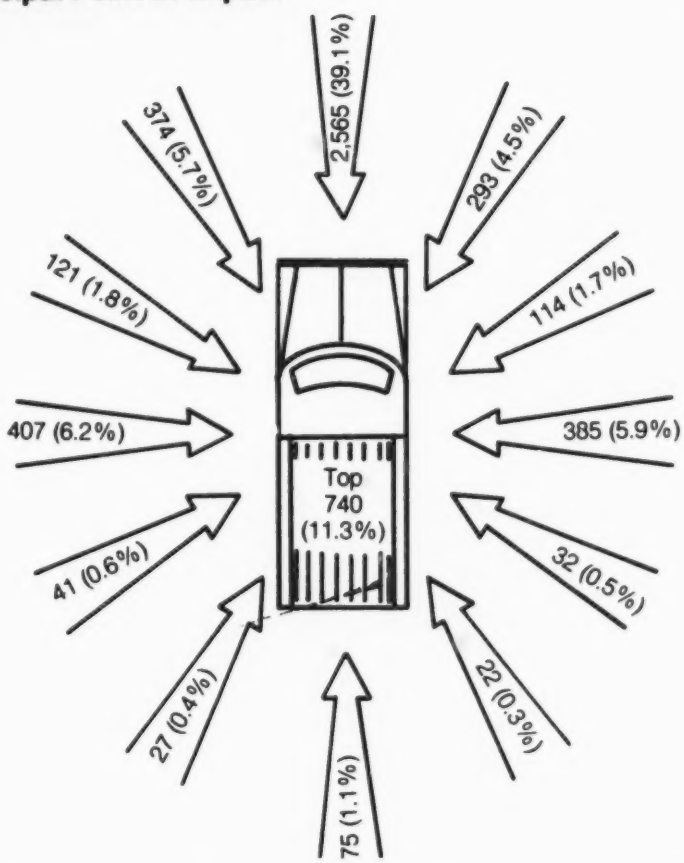

Collision With Nonoccupant 1,640 (14.3%)
Tree or Shrubbery 517 (4.5%)
Other Objects Not Fixed 281 (2.4%)
Utility Pole 202 (1.8%)
Other Fixed Objects 195 (1.7%)
Bridge or Overpass 116 (1.0%)
Embankment 149 (1.3%)
Culvert or Ditch 101 (0.9%)
Unknown 76 (0.7%)
Guard Rail 81 (0.7%)
Sign Post 25 (0.2%)
Noncollision 2,491 (21.7%)
Collision With Motor Vehicle in Transport 5,599 (48.8%)

Figure 29 (6,563)

Distribution of Light Truck Occupant Fatalities by Principal Point of Impact



Undercarriage	18 (0.3%)	Noncollision	1,223 (18.6%)
Underride	21 (0.3%)	Unknown	105 (1.6%)

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Section D. Medium Trucks

The term "medium trucks" refers to any single unit truck with a gross vehicle weight (GVW) between 10,000 and 26,000 pounds. Also, single unit trucks of unknown GVW are included in this class. Table 22 lists the vehicle involvement and occupant fatalities for each of these body types.

A much smaller number of fatal accidents involved medium trucks (1,072) than those which involved the other vehicle types discussed. This is true for every year of FARS operation. These accidents are plotted along with medium truck occupant fatalities in Figure 30. The 8.7 percent decrease in fatal accidents from 1979 represents a 17.2 percent decrease in fatalities to 285 in 1980.

About 92.1 percent of the 1,092 medium trucks involved in 1980 fatal motor vehicle traffic accidents had one of the following noted as the most harmful event:

- Collision with Motor Vehicle in Transport
- Noncollision
- Collision with Nonoccupant

While the specific figures for each event are given in Figure 31, it should be pointed out that "collision with motor vehicle in transport" was cited for 64.9 percent of medium truck most harmful events.

Frontal principal impacts account for the largest proportion of occupant fatalities for this generic vehicle type. Figure 32 shows that the proportion of occupant fatalities in medium trucks suffering top impacts is larger than that for other vehicle types. The same is true for noncollisions as well.

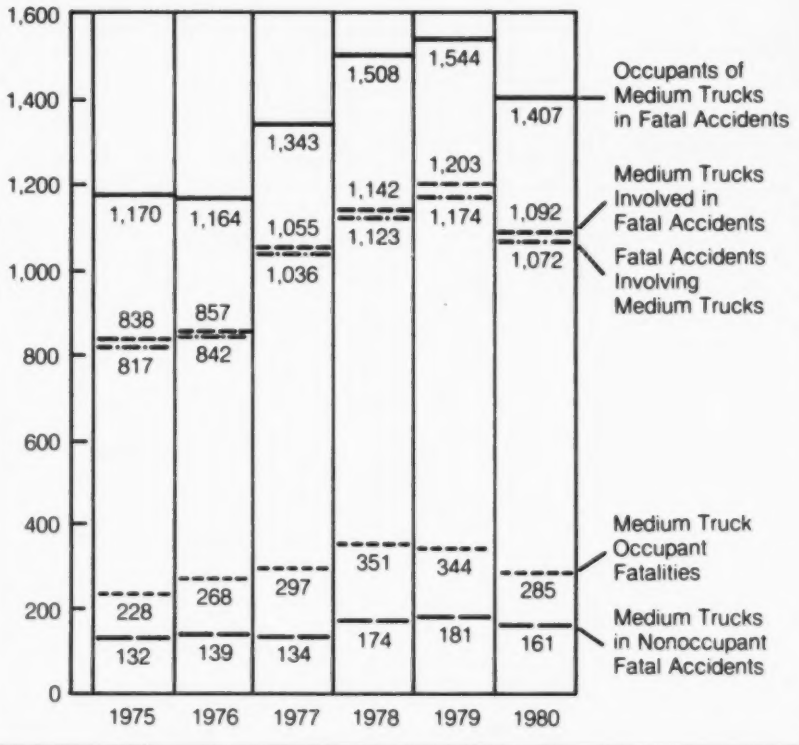
For comparison, frontal impacts (clock points 11, 12, and 1) are associated with 36.5 percent of occupant fatalities, while noncollisions and top impacts combined are associated with 35.1 percent.

In FARS, under ride is not applicable for this vehicle type.

Table 22
Number of Vehicles Involved and Occupant Fatalities by Body Type for Medium Trucks

Body Type	Vehicle Involvement		Occupant Fatalities	
	Number	Percent	Number	Percent
Single Unit Trucks				
10,000 < GVW < 19,501	607	55.6	165	57.9
19,500 < GVW < 26,001	151	13.8	30	10.5
Unknown GVW	334	30.6	90	31.6
Total	**1,092**	**100.0**	**285**	**100.0**

Figure 30
Medium Truck Involved Fatal Accidents and Related Fatalities for 1975 to 1980



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Section E. Heavy Trucks

The term "heavy trucks" used in this section includes the following: (1) single unit truck with GVW greater than 26,000 pounds, (2) tractor-trailer combination, (3) truck with cargo trailer(s), and (4) truck-tractor pulling no trailer. In 1980, there were 4,280 heavy trucks involved in fatal accidents. These resulted in the death of 976 of their occupants. The breakdown of the number of vehicles and fatalities by each body type in the generic "heavy truck" category is listed below in Table 23.

Figure 31 (1,092)

Distribution of Medium Trucks Involved in Fatal Accidents by Most Harmful Event

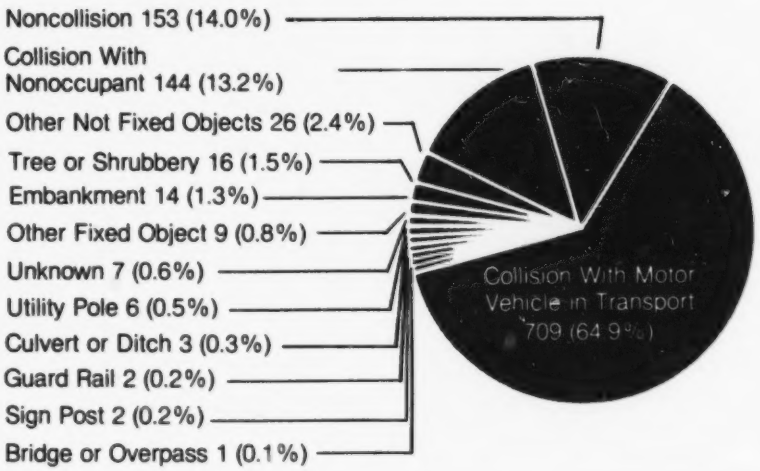
Noncollision 153 (14.0%)
Collision With Nonoccupant 144 (13.2%)
Other Not Fixed Objects 26 (2.4%)
Tree or Shrubbery 16 (1.5%)
Embankment 14 (1.3%)
Other Fixed Object 9 (0.8%)
Unknown 7 (0.6%)
Utility Pole 6 (0.5%)
Culvert or Ditch 3 (0.3%)
Guard Rail 2 (0.2%)
Sign Post 2 (0.2%)
Bridge or Overpass 1 (0.1%)
Collision With Motor Vehicle in Transport 709 (64.9%)

Table 23

Number of Vehicles Involved and Occupant Fatalities by Body Type for Heavy Trucks

Type of Heavy Truck	No. of Vehicles Involved in 1980 Fatal Accidents	No. of Occupant Fatalities
Single Unit Truck GVW > 26,000 lbs.	383	89
Tractor-Trailer Combination	3,591	812
Truck With Cargo Trailer(s)	154	41
Truck-Tractor Pulling No Trailer	152	34
Total	**4,280**	**976**

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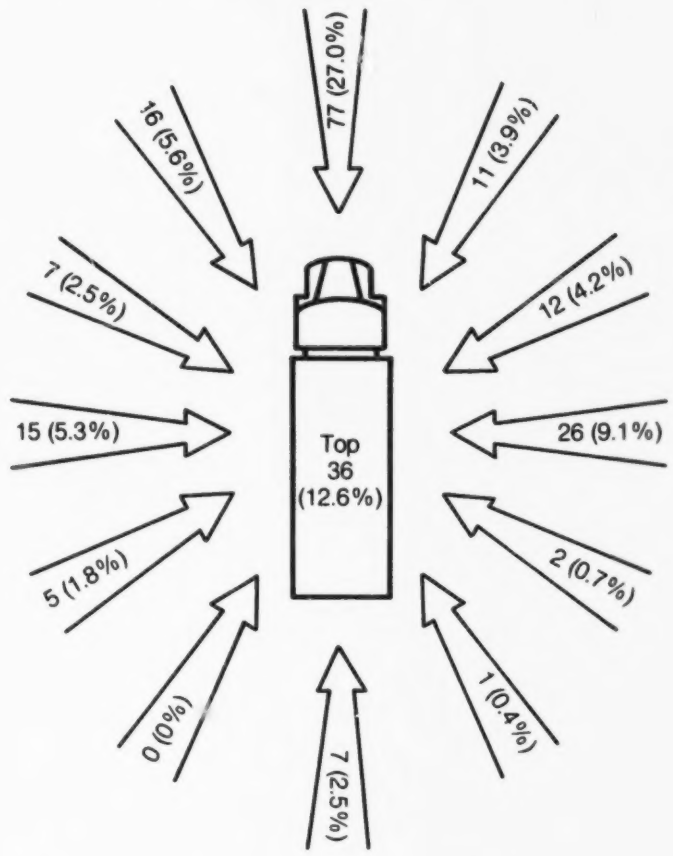
Figure 32 (285)

Distribution of Medium Truck Occupant Fatalities by Principal Point of Impact



Undercarriage	2 (0.7%)
Underride	Not Applicable
Noncollision	64 (22.5%)
Unknown	4 (1.4%)

The five-year* plot for heavy trucks in Figure 33 shows that the difference between the number of heavy truck fatal accidents and the number of truck occupant fatalities has increased each year between 1976 and 1979. In 1980, however, this trend changed in both direction and magnitude to a decrease in occupant fatalities of 10.2 percent from 1979.

Figure 34 reveals that out of the 4,280 heavy trucks involved in fatal motor vehicle traffic accidents, 67.8 percent had a "collision with a motor vehicle in transport" regarded as the most harmful event. Of the five vehicle types studied in Sections a. through e., this proportion is largest for heavy trucks. The proportion for noncollision (13.9 percent) is smaller than for any of the other vehicle types, while collisions with nonoccupants are cited for the smallest proportion (9.5 percent) of the vehicle types in this chapter except in the case of motorcycles.

It is a fact that as the size of the vehicle is increased from motorcycles to heavy trucks, the proportion of occupant fatalities associated with top principal impacts increases. In the case of heavy trucks, this is 12.6 percent of the 976 occupant fatalities.

Frontal principal impacts are still associated with the largest proportion of occupant fatalities. Under ride is not applicable to this vehicle type.

* Coding difficulties in the first year of FARS operation (1975) led to a low count of heavy truck fatal accident involvement. For this reason, 1975 data is omitted from this report.

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Figure 33
Heavy Truck Involved Fatal Accidents and Related Fatalities for 1976 to 1980

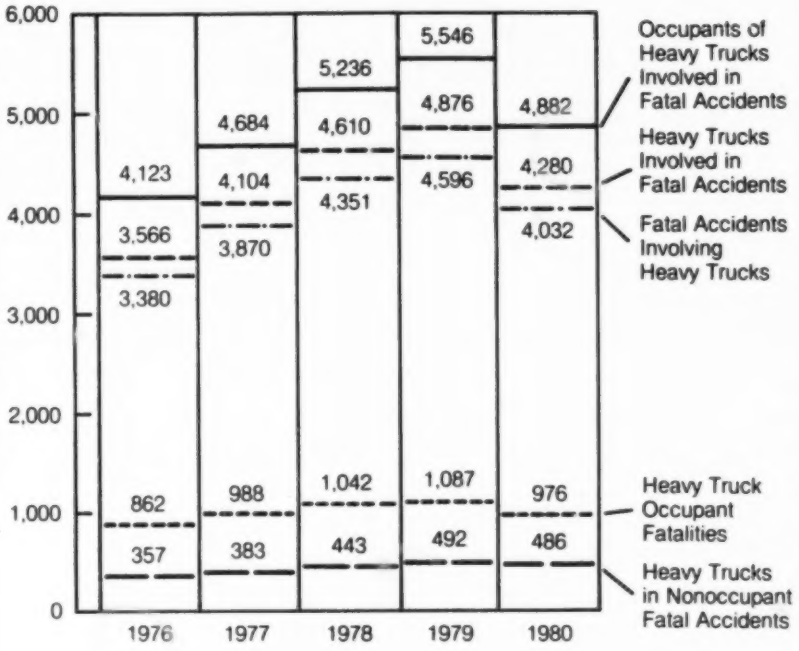
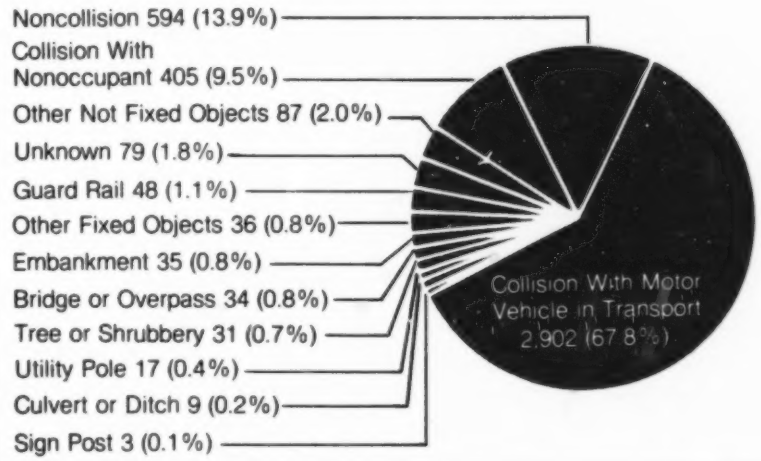


Figure 34 (4,280)
Distribution of Heavy Trucks Involved in Fatal Accidents by Most Harmful Event


Noncollision 594 (13.9%)
Collision With Nonoccupant 405 (9.5%)
Other Not Fixed Objects 87 (2.0%)
Unknown 79 (1.8%)
Guard Rail 48 (1.1%)
Other Fixed Objects 36 (0.8%)
Embankment 35 (0.8%)
Bridge or Overpass 34 (0.8%)
Tree or Shrubbery 31 (0.7%)
Utility Pole 17 (0.4%)
Culvert or Ditch 9 (0.2%)
Sign Post 3 (0.1%)
Collision With Motor Vehicle in Transport 2,902 (67.8%)

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Section F. School Bus

School bus is a body type *design* of the generic vehicle type "buses." However, the term school bus can also refer to vehicles of any body type *functioning* as a school bus. From the design viewpoint, Table 24 lists school bus involvement and occupant fatality data along with the equivalent data for the other body types which comprise the bus vehicle type.

A vehicle functioning as a school bus refers to a motor vehicle of any body type which satisfies the following criteria:

- externally identifiable to other traffic units as a school/pupil transport vehicle;
- operated or owned by a public or private school-type institution;
- institution's students may range from pre-school through high school;
- occupants, if any, are associated with the institution; and,
- vehicle is in operation at the time of the accident to and from the school or on a school-sponsored activity or trip.

Vehicles functioning as school buses are of high interest to those concerned with child safety. Therefore, it is this vehicle set that is treated in the remainder of this section.

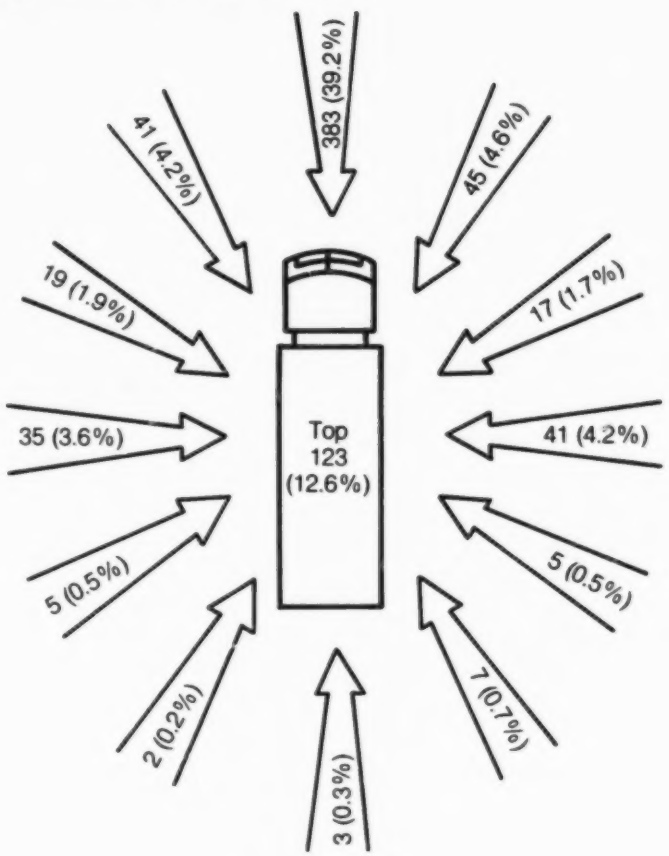
Table 24

Number of Vehicles Involved and Occupant Fatalities by Body Type for Buses

Body Type	Vehicle Involvement		Occupant Fatalities	
	Number	Percent	Number	Percent
School Bus	117	35.5	14	30.4
Cross Country Bus	38	11.5	23	50.0
Transit Bus	150	45.4	6	13.0
Other Bus	14	4.2	2	4.3
Bus Type Unknown	11	3.3	1	2.2
Total	**330**	**100.0**	**46**	**100.0**

Figure 35 (976)

Distribution of Heavy Truck Occupant Fatalities by Principal Point of Impact



Undercarriage	8 (0.8%)
Underride	Not Applicable
Noncollision	216 (22.1%)
Unknown	26 (2.7%)

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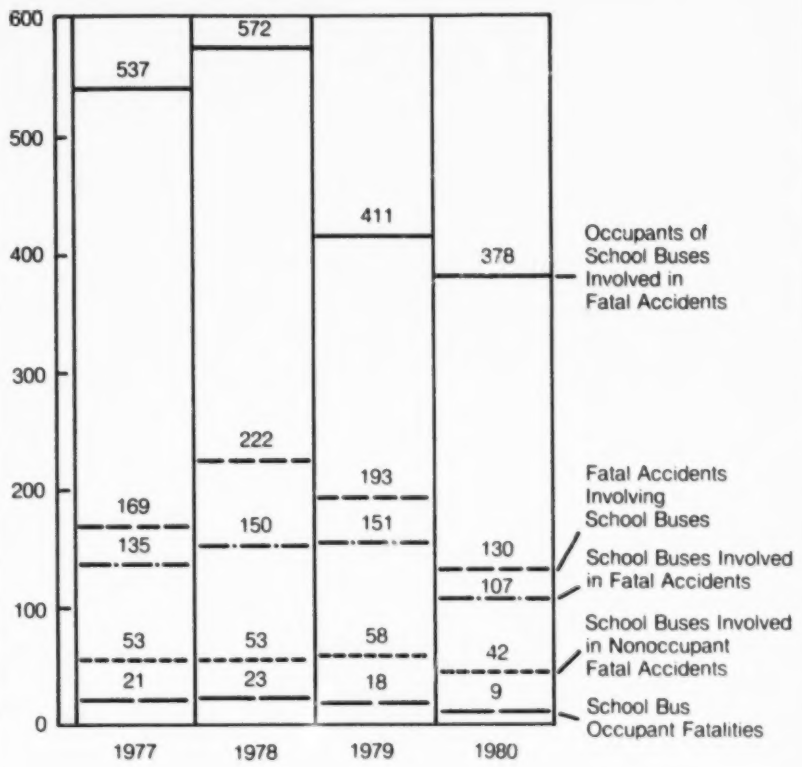
In FARS, the term "school bus related accident" refers to those fatal accidents in which a vehicle functioning as a school bus is directly or indirectly involved. Suppose for example, that a child exiting from a school bus is struck by a passenger car; the fact that a child is struck after exiting it classifies the accident as school bus related even though the school bus is not a struck or striking vehicle. Occupants of vehicles which do not have the typical school bus body type, but which are functioning as school buses, are included with school bus occupants in the figures in this section.

School bus related accidents have been decreasing since 1978 as shown in Figure 36. Fatalities are down 50 percent from 1979 as a result of 29.1 percent fewer buses being involved in fatal accidents. School bus vehicles involved in nonoccupant fatal accidents are the lowest since 1977 as are the four other statistics shown in the figure. School bus occupant fatalities are the lowest proportion of occupants involved in fatal accidents of any of the other vehicle types presented in this chapter.

Figure 36
School Bus Involved Fatal Accidents and Related Fatalities for 1977 to 1980



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The 150 school bus related accidents in 1980 involved 150 fatalities. These included 53 nonoccupants and 97 vehicle occupants, nine of which were school bus occupants. Figure 37 gives a further breakdown of these fatalities. The "other drivers" and "other passengers" were occupants of vehicles involved in the accident which were neither school buses nor vehicles used as school buses.

The age distribution of the 49 pedestrian and four pedalcyclist fatalities in the school bus accidents is shown in Figure 38. The pedalcyclist fatalities are divided between the 5-9 year old and the 10-14 year old groups. The 5-9 year old group accounts for about 60 percent of the pedestrian fatalities. Of the remaining four age groups, the 15-17 year olds account for no nonoccupant fatalities.

Figure 37 (150)

Distribution of Fatalities in Fatal Accidents Involving School Buses

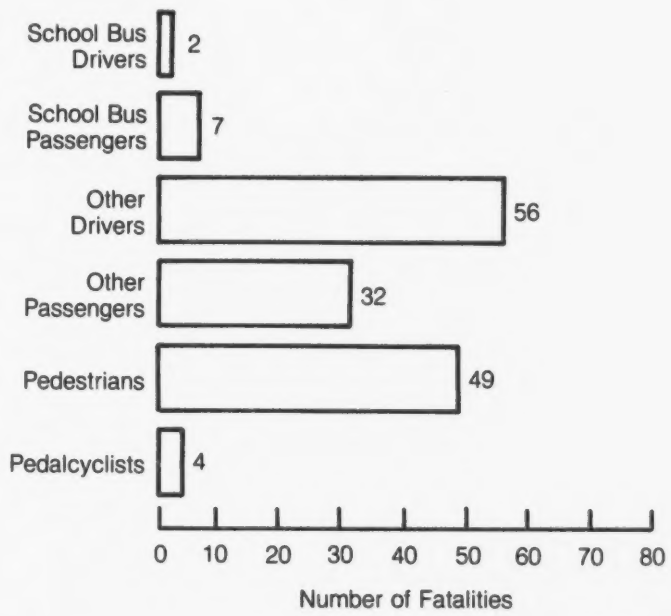
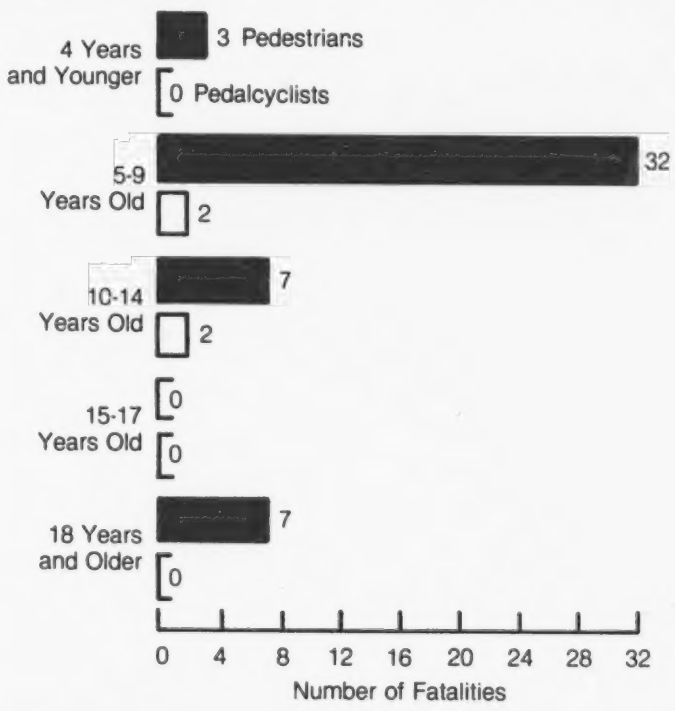


Figure 38 (53)

Pedestrian/Pedalcyclist Fatalities in Fatal School Bus Accidents



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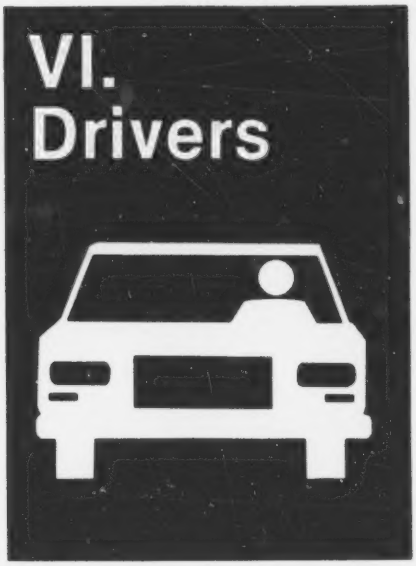
VI. Drivers



There were 62,939 drivers involved in fatal accidents in 1980. These are the vehicle operators, the "persons behind the wheel," who may or may not have been properly licensed. This chapter will examine these individuals primarily by age, injury, driving record, alcohol involvement and restraint system usage. Regarding this last factor, restraint system usage, the FARS file contains a higher portion of unknown data than would be desirable. Nevertheless, it still contains a more complete and up-to-date statistics of restraint usage in fatal accidents than is available through any other data system.

Table 25 categorizes the 62,939 drivers involved in fatal accidents according to age group and type of vehicle driven. The other body types in the motorcycle vehicle class (i.e., mopeds, minibikes, motorscooters, and others) are presented in addition to the motorcycle body type to provide the visibility of age distribution for the different motorcycle body types. The "Other" category includes buses, special vehicles and unknown truck vehicle types. In addition, a distribution by single and multiple vehicle accident involvement is presented.

Nearly 38 percent of the drivers involved in fatal accidents in 1980 were under 25 years of age. This age group also accounts for approximately 52 percent of motorcycle drivers, while the 25–64 age groups account for about 61 percent of light truck drivers involved in fatal accidents. Heavy truck drivers are most predominant in the 25–49 age groups (67.7 percent).

It is interesting to note that the percentage of drivers in the 15–19 age group involved in single vehicle accidents is almost the same as that for drivers involved in multiple vehicle accidents. As drivers grow older they seem to be progressively less involved in single vehicle accidents.

Fridays and Saturdays proved to be the worst days for drivers to be on the road, representing 37.5 percent of the 62,939 drivers involved in fatal accidents. The nighttime hours (4:00 pm to 4:00 am) were the worst times, representing 65.7 percent of the drivers involved in fatal accidents. It is apparent in Tables 26 and 27 that younger drivers were the most likely group to be involved in fatal accidents during those times.

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Table 25 (62,939)

Age of Drivers Involved in Fatal Accidents by Vehicle Type

	14 and Under		15-19		20-24		25-34		35-49	
	No.	%	No.	%	No.	%	No.	%	No.	%
Vehicle Type										
Passenger Car	64	26.7	7,000	69.4	8,474	62.6	9,318	56.5	6,277	54.9
Motorcycle	97	40.4	916	9.1	1,601	11.8	1,638	9.9	580	5.1
Moped, Minibike, etc.	41	17.1	52	0.5	15	0.1	25	0.2	19	0.2
Light Truck	20	8.3	1,602	15.9	2,285	16.9	3,154	19.1	2,312	20.2
Medium Truck	1	0.4	99	1.0	195	1.4	321	1.9	259	2.3
Heavy Truck	0	0.0	79	0.8	502	3.7	1,372	8.3	1,495	13.1
Other	14	5.8	269	2.7	375	2.7	568	3.4	405	3.5
Unknown	3	1.3	65	0.6	84	0.6	105	0.6	83	0.7
Total	**240**	**100.0**	**10,082**	**100.0**	**13,531**	**100.0**	**16,501**	**100.0**	**11,430**	**100.0**
Number of Vehicles in Accident										
Single	90	37.5	5,059	50.2	6,508	48.1	7,191	43.6	4,326	37.8
Multiple	150	62.5	5,023	49.8	7,023	51.9	9,310	56.4	7,104	62.2
Total	**240**	**100.0**	**10,082**	**100.0**	**13,531**	**100.0**	**16,501**	**100.0**	**11.430**	**100.0**

Table 25 (Con't) (62,939)

Age of Drivers Involved in Fatal Accidents by Vehicle Type

	50-64		65 and Over		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%
Vehicle Type								
Passenger Car	4,422	61.5	3,048	80.0	120	75.5	38,723	61.5
Motorcycle	130	1.8	26	0.7	3	1.9	4,991	7.9
Moped, Minibike, etc.	17	0.2	16	0.4	0	0.0	185	0.3
Light Truck	1,419	19.7	550	14.4	21	13.2	11,363	18.1
Medium Truck	158	2.2	34	0.9	4	2.5	1,071	1.7
Heavy Truck	753	10.5	33	0.9	3	1.9	4,237	6.7
Other	231	3.2	75	2.0	4	2.5	428	0.7
Unknown	55	0.8	29	0.8	4	2.5	1,941	3.1
Total	**7,185**	**100.0**	**3,811**	**100.0**	**159**	**100.0**	**62,939**	**100.0**
Number of Vehicles in Accident								
Single	2,584	36.0	1,242	32.6	91	57.2	27,091	43.0
Multiple	4,601	64.0	2,569	67.4	68	42.8	35,848	57.0
Total	**7,185**	**100.0**	**3,811**	**100.0**	**159**	**100.0**	**62,939**	**100.0**

Table 26 (62,939)

Age of Drivers by Day of Week of Accident

Age		Sat	Sun	Mon	Tue	Wed	Thur	Fri	Total
14 and Under	No.	40	43	23	29	32	31	42	240
	%	16.7	17.9	9.6	12.1	13.3	12.9	17.5	100.0
15-19	No.	2,371	1,924	981	989	1,004	1,060	1,753	10,082
	%	23.5	19.1	9.7	9.8	10.0	10.5	17.4	100.0
20-24	No.	3,080	2,525	1,340	1,337	1,480	1,547	2,222	13,531
	%	22.8	18.7	9.9	9.9	10.9	11.4	16.4	100.0
25-34	No.	3,522	2,570	1,777	1,757	1,990	2,075	2,810	16,501
	%	21.3	15.6	10.8	10.6	12.1	12.6	17.0	100.0
35-49	No.	2,237	1,522	1,368	1,365	1,431	1,590	1,917	11,430
	%	19.6	13.3	12.0	11.9	12.5	13.9	16.8	100.0
50-64	No.	1,236	886	933	981	942	1,021	1,186	7,185
	%	17.2	12.3	13.0	13.7	13.1	14.2	16.5	100.0
65 and Over	No.	534	457	544	490	541	597	648	3,811
	%	14.0	12.0	14.3	12.9	14.2	15.7	17.0	100.0
Unknown	No.	38	34	8	17	18	18	26	159
	%	23.9	21.4	5.0	10.7	11.3	11.3	16.4	100.0
Total	**No.**	**13,058**	**9,961**	**6,974**	**6.965**	**7,438**	**7,939**	**10,604**	**62,939**
	%	**20.7**	**15.8**	**11.1**	**11.1**	**11.8**	**12.6**	**16.8**	**100.0**

Table 27 (62,939)

Age of Drivers by Time of Day of Accident

Age		Mid-3:59 a.m.	4:00-7:59 a.m.	8:00-11:59 a.m.	Noon-3:59 p.m.	4:00-7:59 p.m.	8:00-11:59 p.m.	Unknown	Total
14 and Under	No.	16	8	22	57	103	34	0	240
	%	6.7	3.3	9.2	23.8	42.9	14.2	0.0	100.0
15-19	No.	2,610	720	650	1,292	1,983	2,795	32	10,082
	%	25.9	7.1	6.4	12.8	19.7	27.7	0.3	100.0
20-24	No.	3,897	1,312	884	1,544	2,583	3,246	65	13,531
	%	28.8	9.7	6.5	11.4	19.1	24.0	0.5	100.0
25-34	No.	3,836	1,505	1,424	2,245	3,513	3,915	63	16,501
	%	23.2	9.1	8.6	13.6	21.3	23.7	0.4	100.0
35-49	No.	1,910	1,037	1,231	1,828	2,752	2,634	38	11,430
	%	16.7	9.1	10.8	16.0	24.1	23.0	0.3	100.0
50-64	No.	748	667	981	1,581	1,889	1,303	16	7,185
	%	10.4	9.3	13.7	22.0	26.3	18.1	0.2	100.0
65 and Over	No.	112	200	958	1,141	991	400	9	3,811
	%	2.9	5.2	25.1	29.9	26.0	10.5	0.2	100.0
Unknown	No.	41	15	8	19	42	32	2	159
	%	25.8	9.4	5.0	11.9	26.4	20.1	1.3	100.0
Total	**No.**	**13,170**	**5,464**	**6,158**	**9,707**	**13,856**	**14,359**	**225**	**62,939**
	%	**20.9**	**8.7**	**9.8**	**15.4**	**22.0**	**22.8**	**0.4**	**100.0**

Table 28 tabulates the restraint usage and injury severity as reported on the police accident reports of the 37,409 drivers who were the only occupants of the vehicle when they became involved in the fatal accidents. The column portraying manual restraint systems includes motorcycle helmets. The table shows the relatively small proportion of individuals who were known to be using restraint systems to be 2,384 (6.4 percent). The columns labeled "Restraint Use Unknown" and Restraint Use or Deployment Unknown" comprise a relatively large proportion of drivers. Since FARS contains only data relating to accidents in which a fatality occurred, it cannot reflect, in any way, the number of people who were using restraint systems and who sustained less serious injuries than those who were not using restraint systems. That is, what is not known is the number of people who did not get killed because they were using restraint systems. Moreover, when examining this data, it should be taken into account that all vehicle types are included in this table. Therefore, this table cannot be used for comparison to tables or figures which refer to a specific vehicle type.

Note: Because manual and automatic restraint systems may both be present in some vehicles, the horizontal sum of the "total" line is 396 greater than 37,013. This has been localized to some entries in the "manual restraint system not used" column with entries double counted in the automatic restraint system columns.

The previous driving record of 62,871 drivers were analyzed and the results are presented in Table 29. This group of drivers excludes those who had fled the scene, leaving their vehicles at the accident. FARS only counts offenses occurring in the 3 years prior to the 1980 fatal accident date. The five categories of previous convictions are not additive in this table as that would result in double counting in some instances. Also, the table does not reflect individual drivers who may have different types of previous convictions. Driver license status is also presented in this table. A driver is considered to be licensed if the driver held a valid license for the vehicle being operated, if no license was required, or if a learner's permit was held. A driver is considered unlicensed if the driver had no license when one was required, if the driver was licensed but not for the type of vehicle being operated, or if the license was suspended, revoked or expired.

The majority of drivers had no previous recorded violations in each driver record category. However, this majority was lowest for speeding (66.2 percent). It is also interesting to note that a higher proportion of unlicensed drivers had multiple previous recorded convictions than did licensed drivers. Among licensed drivers, the categories with the greatest number of multiple convictions were speeding, other harmful moving violations, and accidents in descending order. Whereas, among unlicensed drivers the order is speeding, other harmful moving violations and suspensions/revocations. A greater proportion of unlicensed drivers had previous recorded driving while intoxicated (DWI) convictions than did licensed drivers.

Table 28 (37,409)

Restraint Use and Injury Severity—Drivers as Only Vehicle Occupant

		Manual (Active) Restraint System			Automatic (Passive) Restraint System		
Injury Severity		Restraint Used	Restraint Not Used	Restraint Use Unknown	Restraint in Use or Deployed	Restraint Not in Use or Deployed	Restraint Use or Deployment Unknown
No Injury	No.	419	6,637	2,923	1	0	132
	%	17.6	25.5	34.3	50.0	0.0	26.1
Possible Injury	No.	104	1,252	313	0	1	9
	%	4.4	4.8	3.7	0.0	20.0	1.8
Non-Incapacitating Injury	No.	134	1,816	677	0	0	36
	%	5.6	7.0	7.9	0.0	0.0	7.1
Incapacitating Injury	No.	124	2,100	545	0	0	46
	%	5.2	8.1	6.4	0.0	0.0	9.1
Fatal Injury	No.	1,600	14,157	4,025	1	4	279
	%	67.2	54.5	47.2	50.0	80.0	55.1
Unknown	No.	1	18	51	0	0	4
	%	0.0	0.1	0.6	0.0	0.0	0.8
Total	**No.**	**2,382**	**25,980**	**8,534**	**2**	**5**	**506**
	%	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 29 (62,871)

Previous Driving Record (Within 3 Years)

	Record	Licensed		Unlicensed		Unknown		Total	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Previous Recorded Accidents	None	43,398	78.5	4,596	70.8	18	1.6	48,012	76.4
	One	8,822	16.0	923	14.2	4	0.4	9,749	15.5
	Two	2,237	4.0	323	5.0	0	0.0	2,560	4.1
	Three	548	1.0	104	1.6	1	0.1	653	1.0
	Four	146	0.3	25	0.4	0	0.0	171	0.3
	Five or More	49	0.1	17	0.3	0	0.0	66	0.1
	Unknown	87	0.2	504	7.8	1,069	97.9	1,660	2.6
	Total	**55,287**	**100.0**	**6,492**	**100.0**	**1,092**	**100.0**	**62,871**	**100.0**
Previous Recorded Suspensions/ Revocations	None	51,641	93.4	4,047	62.3	22	2.0	55,710	88.6
	One	2,661	4.8	1,104	17.0	0	0.0	3,765	6.0
	Two	607	1.1	480	7.4	1	0.1	1,088	1.7
	Three	179	0.3	187	2.9	0	0.0	366	0.6
	Four	64	0.1	85	1.3	0	0.0	149	0.2
	Five or More	48	0.1	85	1.3	0	0.0	133	0.2
	Unknown	87	0.2	504	7.8	1,069	97.9	1,660	2.6
	Total	**55,287**	**100.0**	**6,492**	**100.0**	**1,092**	**100.0**	**62,871**	**100.0**
Previous Recorded DWI Convictions	None	53,362	96.5	5,079	78.2	23	2.1	58,464	93.0
	One	1,576	2.9	614	9.5	0	0.0	2,190	3.5
	Two	227	0.4	215	3.3	0	0.0	442	0.7
	Three	24	0.0	58	0.9	0	0.0	82	0.1
	Four	11	0.0	19	0.3	0	0.0	30	0.0
	Five or More	0	0.0	3	0.0	0	0.0	3	0.0
	Unknown	87	0.2	504	7.8	1,069	97.9	1,660	2.6
	Total	**55,287**	**100.0**	**6,492**	**100.0**	**1,092**	**100.0**	**62,871**	**100.0**
Previous Recorded Speeding Convictions	None	37,396	67.6	4,200	64.7	16	1.5	41,612	66.2
	One	10,382	18.8	873	13.4	1	0.1	11,256	17.9
	Two	4,283	7.7	414	6.4	5	0.5	4,702	7.5
	Three	1,782	3.2	231	3.6	1	0.1	2,014	3.2
	Four	731	1.3	120	1.8	0	0.0	851	1.4
	Five or More	626	1.1	150	2.3	0	0.0	776	1.2
	Unknown	87	0.2	540	7.8	1,069	97.9	1,660	2.6
	Total	**55,287**	**100.0**	**6,492**	**100.0**	**1,092**	**100.0**	**62,871**	**100.0**
Previous Recorded Other Harmful Moving Violations	None	42,615	77.1	4,071	62.7	18	1.6	46,704	74.3
	One	8,567	15.5	931	14.3	4	0.4	9,502	15.1
	Two	2,521	4.6	465	7.2	1	0.1	2,987	4.8
	Three	865	1.6	237	3.7	0	0.0	1,102	1.8
	Four	332	0.6	137	2.1	0	0.0	469	0.7
	Five or More	300	0.5	147	2.3	0	0.0	447	0.7
	Unknown	87	0.2	504	7.8	1,069	97.9	1,660	2.6
	Total	**55,287**	**100.0**	**6,492**	**100.0**	**1,092**	**100.0**	**62,871**	**100.0**

Figure 39 depicts the alcohol test results of drivers in fatal accidents. Blood alcohol concentration (BAC) level is measured as a percentage by weight of alcohol in the blood. Essentially, a positive BAC level (.01 percent and up) indicates that alcohol has been consumed by the person tested. Chemical tests for alcohol are primarily conducted on fatally injured drivers, since about half the States have laws requiring that such a test be given on all drivers killed in crashes.

Nevertheless, for the Nation as a whole, only 57.0 percent of the 28,807 fatally injured drivers were tested for alcohol. Surviving drivers were tested only 19.1 percent of the time. Thus, while most well-controlled research studies indicate that alcohol is involved in from one-third to one-half of all fatal crashes, due to the subjective and incomplete nature of the reports, alcohol tests were known to be given for only 36.6 percent of the drivers involved in fatal crashes in 1980. BAC test results are reported in the FARS file for only 28.6 percent of the drivers. In most States, a driver having a BAC level of at least .10 percent is considered legally drunk. Slightly over 42 percent of the drivers involved in fatal accidents who were tested had BAC levels equal to or greater than this value. Of these, almost two-thirds were in single vehicle accidents.

Figures 40 and 41 examine alcohol involvement in other ways. Figure 40 provides data on the 18,061 drivers with known BAC test results by vehicle type. Of these drivers, the proportion of drivers of passenger cars who in many States would be considered legally drunk, exceeded by 3 to 1 that proportion of drivers of similar BAC in light trucks—the vehicle type with the next highest proportion of drivers with BAC greater than or equal to .10. Motorcycle drivers had the third highest proportion of drivers with BAC greater than or equal to .10 at 5.8 percent of the drivers with known test results.

Figure 39 (62,939)

Alcohol Test Results of All Drivers Involved in Fatal Accidents

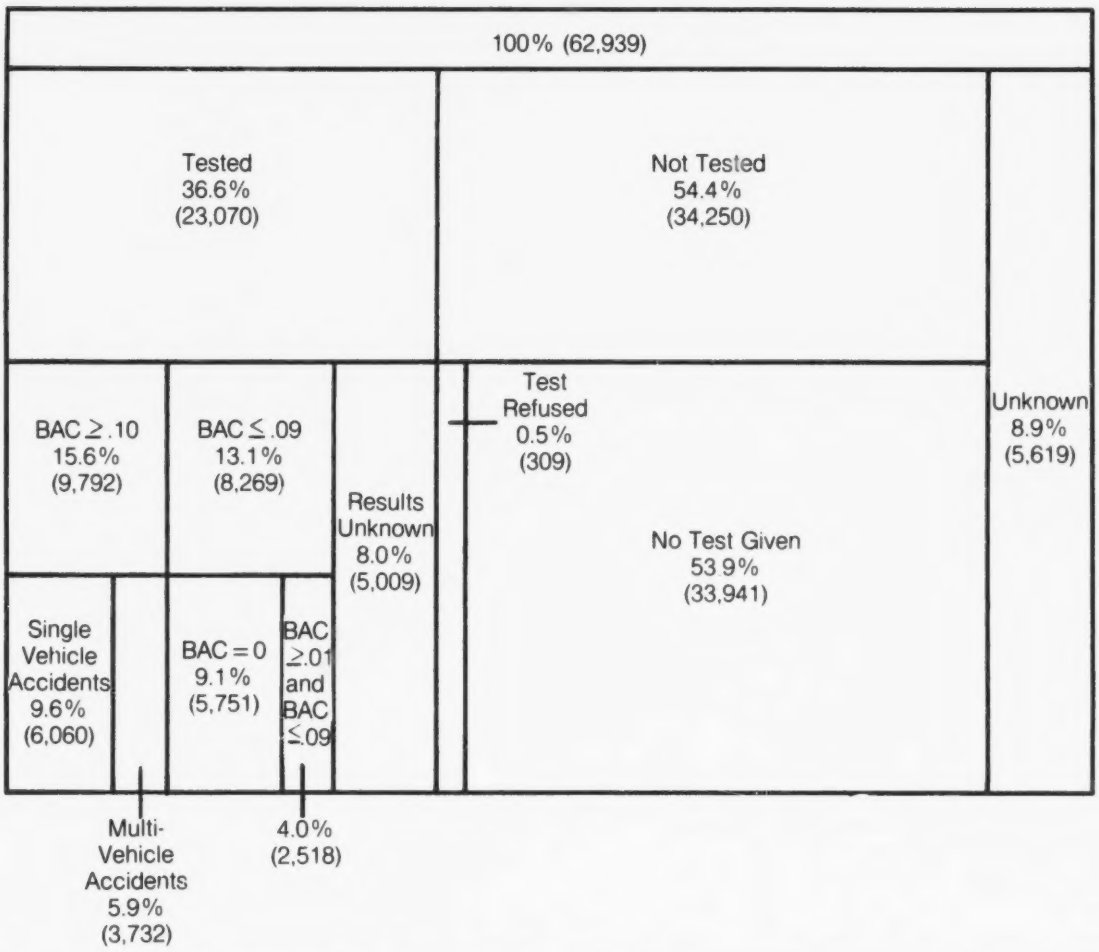

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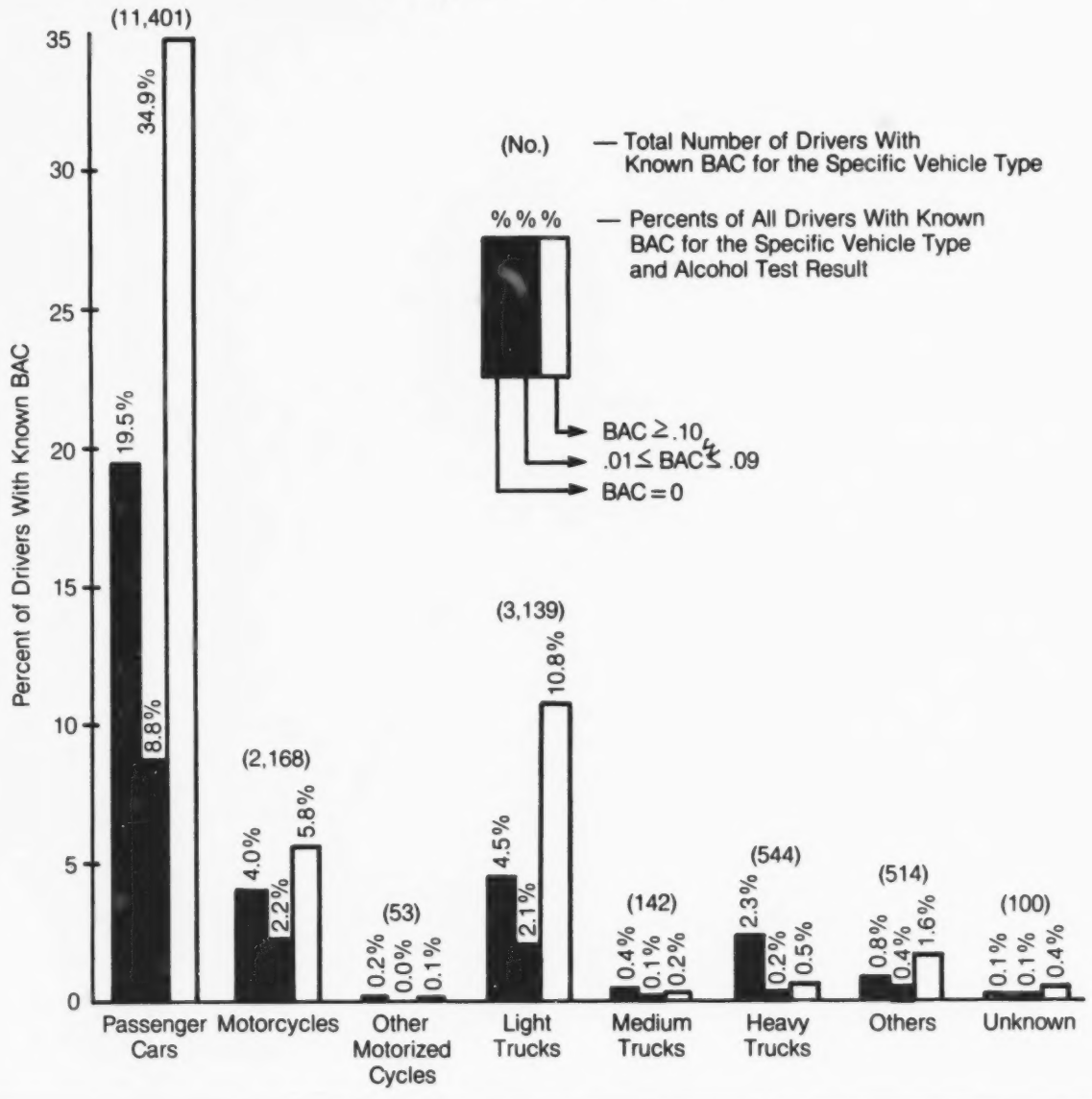
Figure 41 displays data on the 1,318 drivers with known BAC test results and who were known to have had one or more previous DWI convictions. Not shown is the additional 599 drivers who had known BAC test results and unknown previous DWI conviction record. 81.6 percent of all drivers with known BAC test results and who were known to have had one or more previous DWI convictions had a BAC greater than or equal to .10. However, this same group of drivers comprise only 6.0 percent of all drivers with known BAC test results. Nevertheless, this group of drivers is at least eight times greater than the number of drivers in either of the other two groups in Figure 45. This would suggest that having previous DWI convictions does not deter those individuals who drive after having consumed enough alcohol to reach a BAC of .10. It should be noted that it is difficult to get convictions of drivers for which there may have been alcohol involvement. This is due to many drivers evading DWI convictions through plea bargaining or answering to reduced charges.

Figure 40 (18,061)

Drivers With Known Alcohol Test Results by Vehicle Type



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Continuing to examine drivers with known BAC test results, Figure 42 depicts their accident involvement by time of day and day of week. Figure 42a shows drivers with BAC=0, Figure 42b shows drivers with BAC between .01 and .09, inclusive, and Figure 42c shows drivers with BAC greater than or equal to .10. It is clear from Figure 42c that Friday and Saturday nights have the greatest proportion of accident involved drivers who have consumed alcohol than any other time period. Also, for these two nights, the highest level of accident involvement was in the midnight to 4 am period. For every other night of the week, the highest level of involvement was the 8 pm to midnight period.

Figure 41 (1,318)

Alcohol Test Results of Drivers With Known Results and One or More Previous DWI Convictions

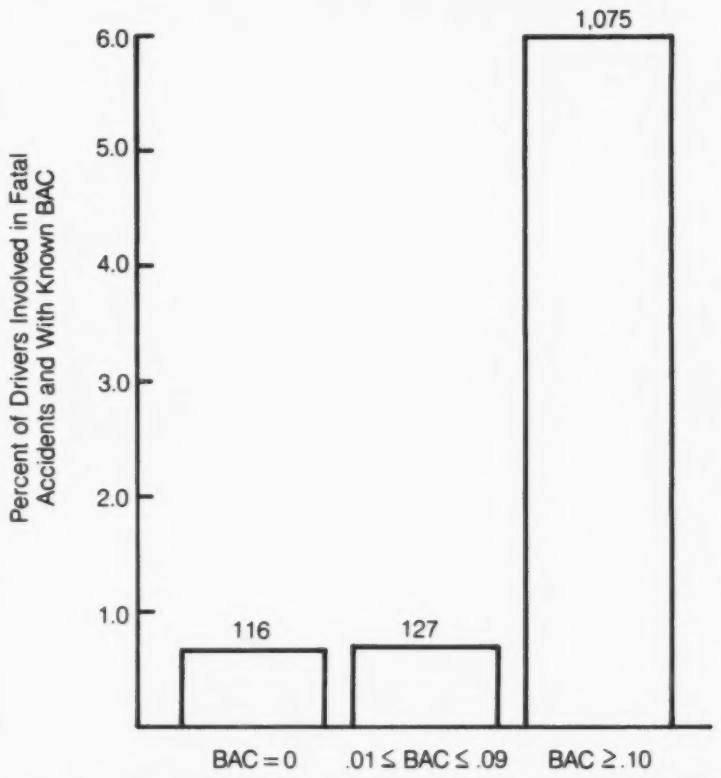

Figure 42 (18,061)

Drivers With Known Alcohol Test Results by Accident Time of Day and Day of Week

a. BAC = 0

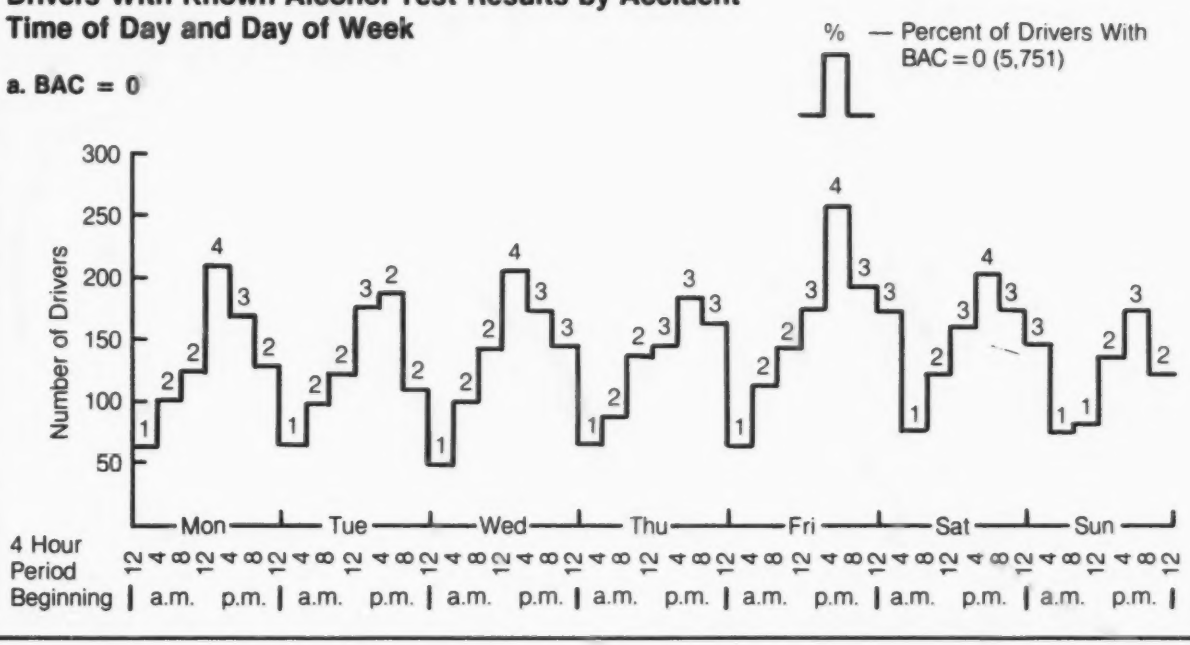
% — Percent of Drivers With BAC = 0 (5,751)
Number of Drivers
300
250
200
150
100
50
Mon
Tue
Wed
Thu
Fri
Sat
Sun
4 Hour Period Beginning
12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12
a.m. p.m. a.m. p.m. a.m. p.m. a.m. p.m. a.m. p.m. a.m. p.m. a.m. p.m.

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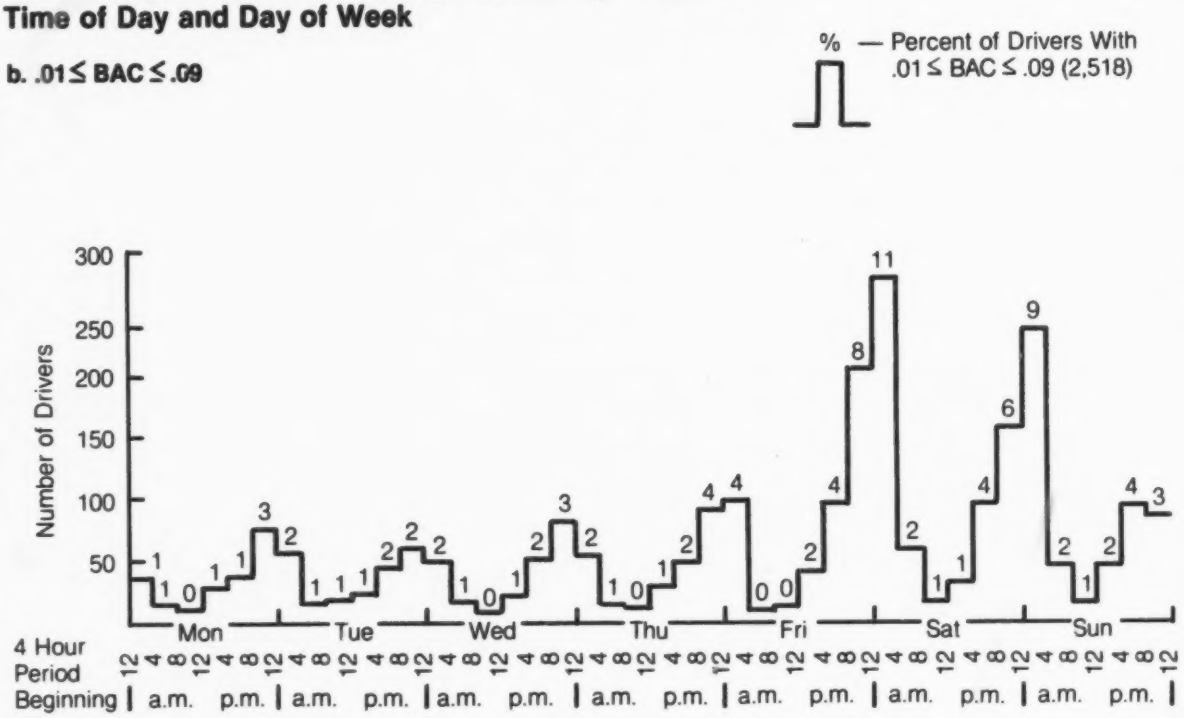
Figure 42 (18,061)

Drivers With Known Alcohol Test Results by Accident Time of Day and Day of Week

b. .01 ≤ BAC ≤ .09



c. BAC ≥ .10

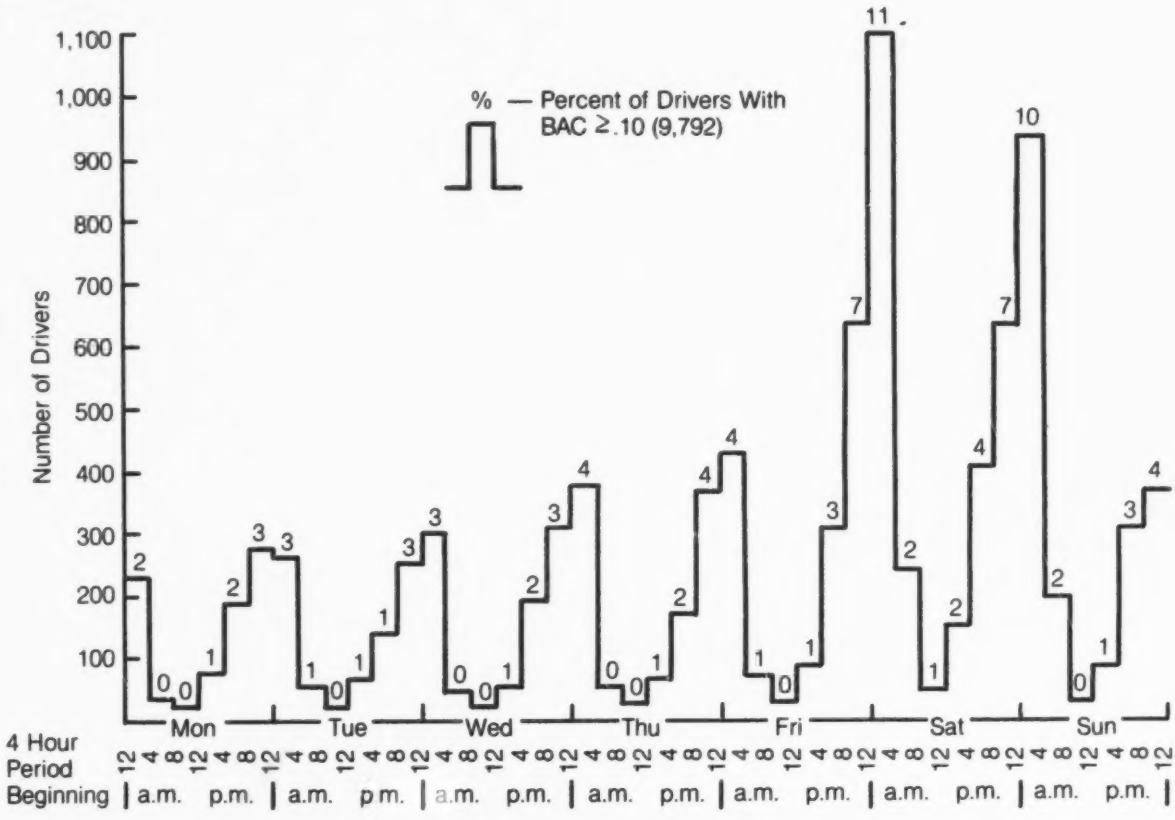


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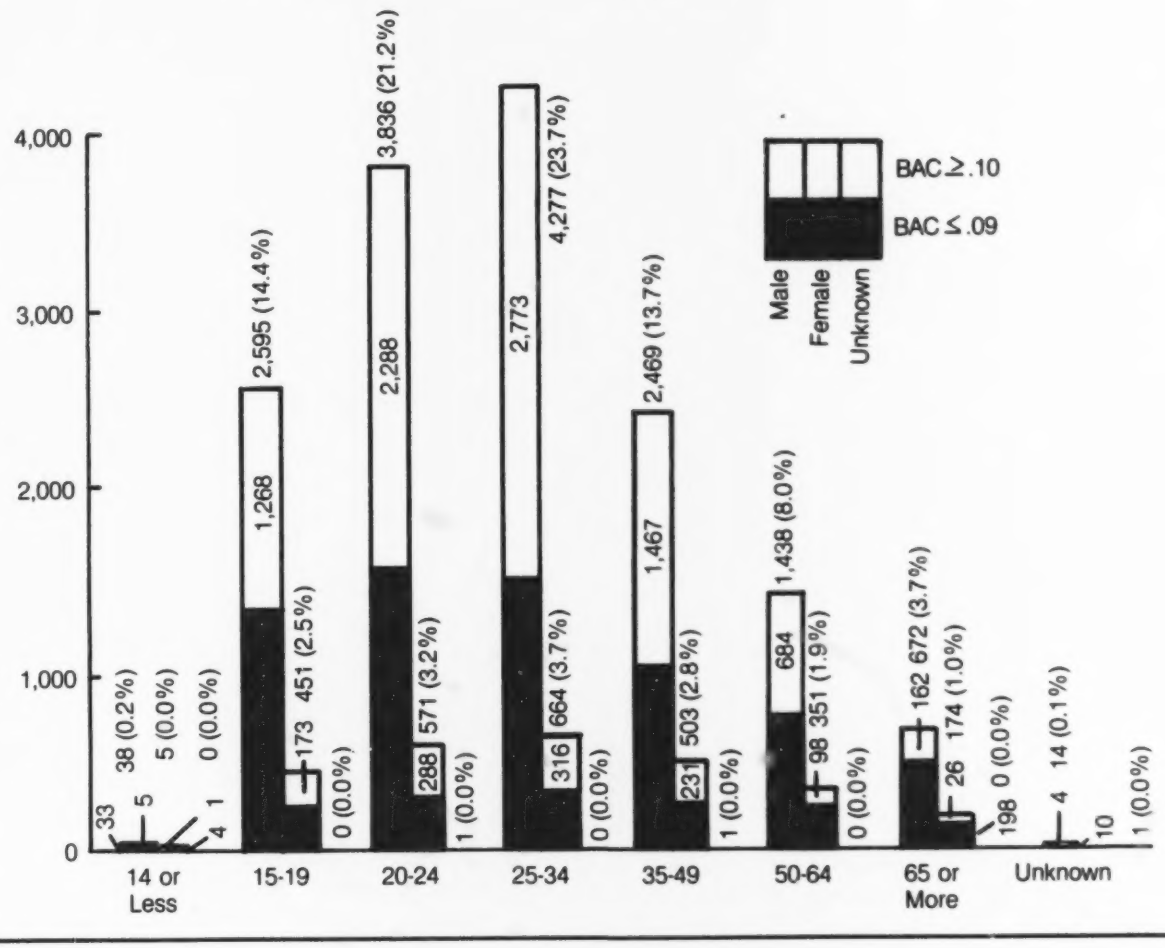
Figure 43 concludes the examination of drivers with known BAC test results by presenting the age and sex distributions of these drivers. Over half of the drivers are in the 20 to 34 year old group with 13.2 percent of them being females. The percentages of drivers in the 15 to 19 year old group with known positive BAC was only 0.4 percent more than the drivers in the 35 to 49 year old group.

Figure 43 (18,061)

Drivers With Known Alcohol Test Results by Age and Sex



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VII. Occupants

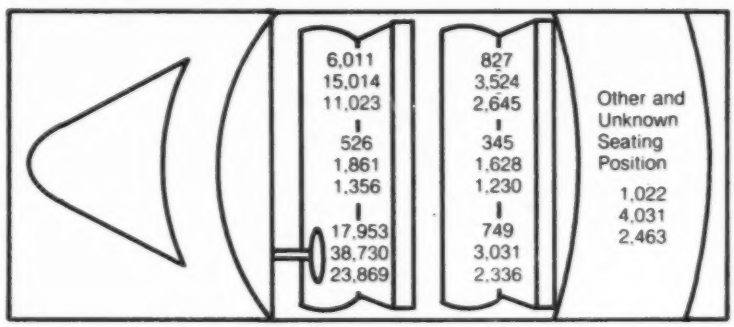
In 1980, there were 41,913 occupants killed in motor vehicles, a negligible decrease from 1979. This accounts for 82.1 percent of all 1980 fatalities, with nearly two-thirds of the occupant fatalities being drivers.

This chapter will present information on occupants of vehicles involved in fatal accidents with the primary emphasis on restraint system usage. Although drivers were examined separately in the previous chapter, some new data are presented here so that comparisons with other passengers may be made.

Figure 44 presents the distribution of passenger car occupant fatalities by their seating position and shows that the majority of passengers killed were in the front left seats (17,953). When these fatalities are compared to the number of times there was an occupant of that seating position (38,730) in fatal accident involved passenger cars, it reveals that nearly half the time (46.4 percent) that person was killed. In fact, the person in the front left seat of passenger cars was fatally injured 75.2 percent of the time that a fatality occurred in that vehicle.

Figure 44 (27,433)

Passenger Car Occupant Fatalities by Seating Position



Totals

27,433	Fatalities
66,702	Occupants
44,922	Occupants of Vehicles in Which a Fatality Occurred

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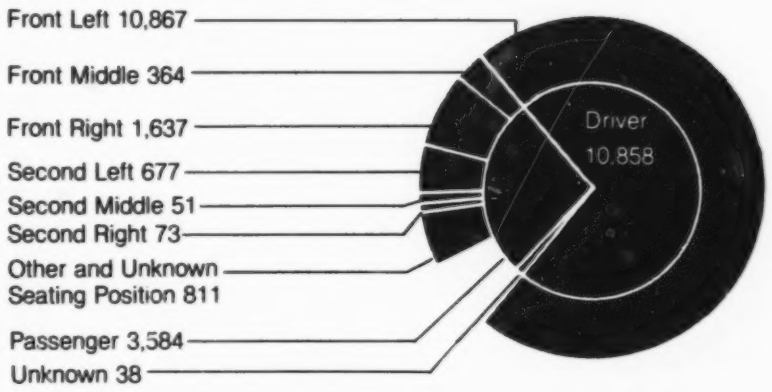
Figure 45 deals with all vehicles except passenger cars. Figure 45a shows again that there were more occupants of the front left seat killed (75.0 percent) than occupants of other seat positions. It is probable that this is due to higher frequency of that seat being occupied than any other seat position. While the true frequency distribution of seat position occupancy is not known, it is interesting to examine the seat occupancy distribution for vehicles in fatal accidents as in Figures 45b and 45c. Figure 45b shows that there were 24,216 occupants in the driver position for a fatality rate of 44.8 percent (slightly less than the rate for passenger cars). Figure 45c shows that the occupant in the driver position was killed 61.1 percent of the time out of the 13,389 times that seat was occupied when at least one fatality occurred in that non-passenger car vehicle.

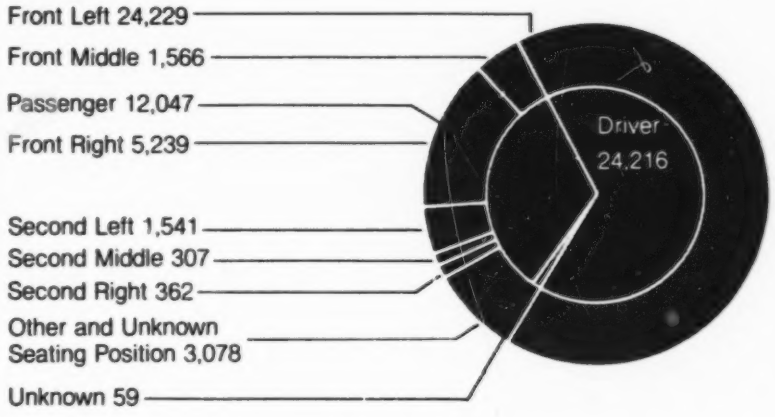
Figure 45 (14,480)

Non-Passenger Car Occupant Seating Position

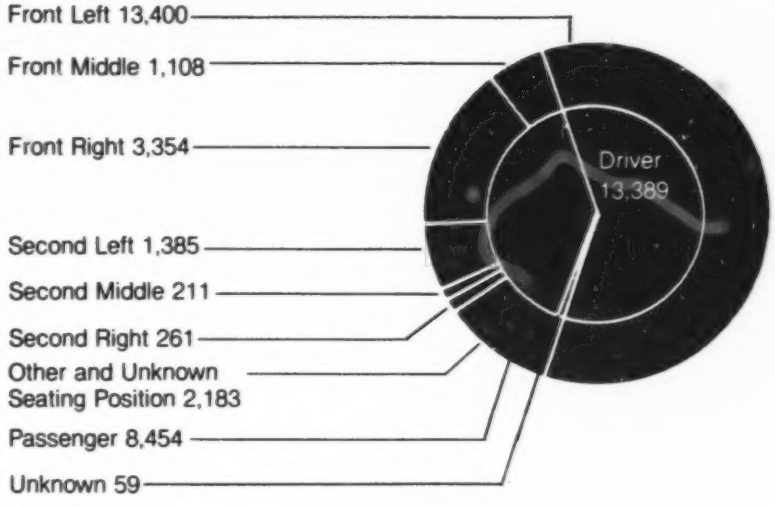
a. Fatalities



b. Occupants (36,322)



c. Occupants of Vehicles in Which a Fatality Occurred (21,902)



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Counts on the usage of restraint systems for occupants of passenger cars are presented in Table 30. As in 1979, a relatively small portion (2.7 percent) of these occupants were indicated to have used some type of restraint system at the time of the accident. However, the actual usage rates are concealed by a large number of unknowns in the FARS file (22.3 percent for manual systems and 1.7 percent for automatic systems). Nevertheless, the FARS file contains the most comprehensive and up-to-date data on restraint usage in fatal accidents available. Table 30 includes 51 passengers who were riding on the exterior of the passenger car. These are included under the "Passenger" column and the "None Used" and "Not Applicable" rows. One interesting observation from this table is that almost twice the proportion of drivers used the manual restraint system as did the passengers. As in the tables dealing with drivers only, the manual restraint data may double count the automatic restraint data as some vehicles may contain both types of restraint systems. The effect of this has been minimized in Table 30 by showing subtotals for each restraint system type.

Table 30 (66,702)

Restraint Use by Passenger Car Occupants

Restraint Type	Driver		Passenger		Unknown Occupant Type		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Manual (Active) Restraint System								
None Used	28,405	56.8	21,511	43.0	85	0.2	50,001	100.0
Shoulder Belt	74	69.2	33	30.8	0	0.0	107	100.0
Lap Belt	422	69.0	190	31.0	0	0.0	612	100.0
Lap and Shoulder Belt	562	71.9	220	28.1	0	0.0	782	100.0
Child Safety Seat	0	0.0	55	100.0	0	0.0	55	100.0
Motorcycle Helmet	1	100.0	0	0.0	0	0.0	1	100.0
Used—Type Unknown	156	62.2	93	37.1	2	0.8	251	100.0
Unknown	9,103	61.1	5,736	38.5	54	0.4	14,893	100.0
Total	**38,723**	**58.0**	**27,838**	**41.7**	**141**	**0.2**	**66,702**	**100.0**
Automatic (Passive) Restraint System								
Not Applicable	38,078	58.1	27,332	41.7	137	0.2	65,547	100.0
Belt in Use	6	66.7	3	33.3	0	0.0	9	100.0
Belt Not in Use	8	72.7	3	27.3	0	0.0	11	100.0
Deployed Air Bag	0	0.0	0	0.0	0	0.0	0	100.0
Non-Deployed Air Bag	1	50.0	1	50.0	0	0.0	2	100.0
Unknown	630	55.6	499	44.0	4	0.4	1,133	100.0
Total	**38,723**	**58.0**	**27,838**	**41.7**	**141**	**0.2**	**66,702**	**100.0**

Table 31 compares the injury severity of passenger car occupants by restraint system usage. A breakdown by type of occupant and seating position is also given. This table excludes the 51 occupants riding on the vehicle exterior that were in the previous table. Note that three quarters of the occupants in fatal accidents were reported as not using restraints. (Again, the large number of unknowns should be considered when examining these data.) Of these, 65.1 percent were killed or received incapacitating injuries. However, of the 2.7 percent of the occupants that did use restraint systems, only 50.6 percent were killed or received incapacitating injuries.

Table 32 tabulates restraint usage by drivers who were the only passenger car occupants, by injury severity. This table shows that 32 percent of the drivers who used restraint systems sustained no injuries as opposed to only 22 percent of those who did not use restraint systems. Since this table is composed of only individuals who were driving alone at the time of the accident, the 32 percent figure actually underestimates the number of individuals who were potentially saved because someone else involved in the accident had to have been fatally injured in order for the accident to be included in the FARS file. That is, any number of drivers using restraint systems could have survived a nonfatal accident and therefore not be included in the FARS file.

Table 33 divides the passenger car occupant restraint usage by age groups. The automatic restraint portion of the table reflects only entries for occupants for which this restraint system type is applicable. Also, these entries double count entries in the manual restraint portion of the table due to the existence of both restraint system types in some vehicles. The 95 occupants, aged 4 years old or less, who used a manual restraint system are composed of 55 occupants in child safety seats and 40 in other system types.

Table 31 (66,651)

Injury Severity and Restraint Use by Passenger Car Occupants

Occupant Type	Restraint Used or Deployed	Seat Position	Injury Severity: No Injury		Possible Injury		Non-Incapacitating Injury		Incapacitating Injury		Fatal Injury		Unknown	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Driver	Yes	Front	355	3.0	99	2.6	164	1.8	189	1.3	406	1.5	2	0.8
	Yes	Other	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Yes	Unknown	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	No	Front	5,563	47.6	1,295	34.5	2,922	31.4	4,673	32.7	13,914	50.8	37	15.0
	No	Other	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	No	Unknown	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0
	Unknown	Front	2,751	23.6	387	10.3	1,062	11.4	1,199	8.4	3,629	13.2	75	30.5
	Unknown	Other	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Unknown	Unknown	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Passenger	Yes	Front	81	0.7	33	0.9	65	0.7	108	0.8	147	0.5	2	0.8
	Yes	Other	31	0.3	23	0.6	32	0.3	30	0.2	24	0.1	0	0.0
	Yes	Unknown	0	0.0	2	0.0	3	0.0	5	0.0	5	0.0	0	0.0
	No	Front	1,313	11.2	801	21.3	2,117	22.8	3,758	26.3	5,219	19.0	34	13.8
	No	Other	851	7.3	611	16.3	1,443	15.5	2,365	16.6	1,707	6.2	30	12.2
	No	Unknown	0	0.0	51	1.4	239	2.6	488	3.4	419	1.5	15	6.1
	Unknown	Front	485	4.2	225	6.0	613	6.6	688	4.8	1,175	4.3	19	7.7
	Unknown	Other	251	2.1	137	3.6	378	4.1	404	2.8	308	1.1	12	4.9
	Unknown	Unknown	0	0.0	89	2.4	245	2.6	350	2.4	336	1.2	20	8.1
Unknown	Yes	Front	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Yes	Other	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Yes	Unknown	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0	0	0.0
	No	Front	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	No	Other	0	0.0	0	0.0	0	0.0	1	0.0	1	0.0	0	0.0
	No	Unknown	0	0.0	0	0.0	2	0.0	23	0.2	58	0.2	0	0.0
	Unknown	Front	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Unknown	Other	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Unknown	Unknown	0	0.0	0	0.0	5	0.0	9	0.1	40	0.1	0	0.0
Total			**11,681**	**100.0**	**3,753**	**100.0**	**9,291**	**100.0**	**14,290**	**100.0**	**27,390**	**100.0**	**246**	**100.0**

Table 32 (21,204)

Restraint Use and Injury Severity—Drivers as Only Passenger Car Occupant

Injury Severity		Manual (Active) Restraint System: Restraint Used	Manual (Active) Restraint System: Restraint Not Used	Manual (Active) Restraint System: Restraint Use Unknown	Automatic (Passive) Restraint System: Restraint in Use or Deployed	Automatic (Passive) Restraint System: Restraint Not in Use or Deployed	Automatic (Passive) Restraint System: Restraint Use or Deployment Unknown
No Injury	No.	205	3,416	1,645	1	0	70
	%	32.0	22.4	32.9	50.0	0.0	22.6
Possible Injury	No.	52	583	175	0	1	3
	%	8.1	3.8	3.5	0.0	20.0	1.0
Non-Incapacitating Injury	No.	59	993	408	0	0	23
	%	9.2	6.5	8.2	0.0	0.0	7.4
Incapacitating Injury	No.	68	1,310	352	0	0	30
	%	10.6	8.6	7.0	0.0	0.0	9.7
Fatal Injury	No.	256	8,936	2,380	1	4	181
	%	39.9	58.6	47.6	50.0	80.0	58.4
Unknown	No.	1	11	37	0	0	3
	%	0.2	0.1	0.7	0.0	0.0	1.0
Total	**No.**	**641**	**15,249**	**4,997**	**2**	**5**	**310**
	%	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 33 (66,702)

Passenger Car Occupant Restraint Use by Age

Restraint Used	Number or Percent	4 or Less	5-14	15 or More	Unknown	Total
		Manual (Active) Restraint System				
Yes	No.	95	57	1,646	10	1,808
	%	5.3	3.2	91.0	0.6	100.0
No	No.	1,270	2,463	45,800	468	50,001
	%	2.5	4.9	91.6	0.9	100.0
Unknown	No.	309	644	13,617	323	14,893
	%	2.1	4.3	91.4	2.2	100.0
Total	No.	1,674	3,164	61,063	801	66,702
	%	2.5	4.7	91.5	1.2	100.0
		Automatic (Passive) Restraint System				
Yes (or Deployed)	No.	0	0	9	0	9
	%	0.0	0.0	100.0	0.0	100.0
No (or Not Deployed)	No.	0	0	13	0	13
	%	0.0	0.0	100.0	0.0	100.0
Unknown	No.	40	59	1,013	21	1,133
	%	3.5	5.2	89.4	1.9	100.0
Total	**No.**	**40**	**59**	**1,035**	**21**	**1,155**
	%	**3.5**	**5.1**	**89.6**	**1.8**	**100.0**

Table 34 shows a comparison of restraint usage by passenger car occupants by degree of ejection and point of principal impact on the vehicle. This table does not include occupants in noncollisions. As stated previously, the rate of unknown usage is high and should be considered when examining the data. Although the numbers are small, the table is designed to present a comparison of the likelihood of ejection based on the use or non-use of restraints. Table 34 does illustrate that if the number of all occupants is used as the base, the percentage of occupants who did not use a restraint system and were either totally or partially ejected (8.7) is more than 147 times greater than the percentage (.05) of occupants who did use a restraint system. Also, nearly a quarter of the totally ejected unrestrained occupants resulted from an impact to the top of the vehicle. On the other hand, no restrained occupants were totally ejected in similar impacts.

Table 35 examines the 1,739 passenger car occupants using restraint systems more closely than did Table 34. The dimension type manual restraint used is added in this table. An impressive observation is that 97.6 percent of these occupants were not ejected.

Figure 46 deals with the 4,960 fatalities of riders on the specific body type "motorcycles," and does not include mopeds, minibikes, or other type of motorized cycles. The figure is divided into two halves. The left side includes the statistics on motorcycle accidents for States with no mandatory helmet use laws for any rider plus the statistics on accidents in States where there is no mandatory law for riders who were 18 years old or older. The right side of the figure pertains to States with mandatory helmet use laws and to riders under 18 years old for those States with mandatory laws for such riders. There were 3,064 fatal motorcycle accidents involving 3,147 motorcycles represented in the left side of the figure and 1,872 fatal accidents involving 1,921 motorcycles represented in the right side.

Inspection of Figure 46 reveals differences between the left and right sides for each rider type. In fact, when

the total of all riders is considered, States without mandatory helmet laws had 1.8 percentage points higher proportion of rider fatalities than did States with mandatory helmet laws. Again, it should be recalled that this difference underestimates the number of riders who were not killed because they were wearing a helmet. Such nonfatal accidents are not in the FARS file. Another report sponsored by NHTSA* determined that helmetless motorcycle riders received injuries to the head or neck with nearly twice the frequency of helmeted riders.

Table 34 (62,776)

Ejection, Restraint Use, and Principal Point of Impact For Passenger Car Occupants

Point of Principal Impact	Not Ejected		Totally Ejected		Partially Ejected		Unknown	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Restraint Not Used								
Frontal	26,737	64.9	1,719	38.2	447	94.5	122	52.4
Right Side	5,125	12.4	733	16.3	131	13.8	26	11.2
Rear	1,519	3.7	198	4.4	34	3.6	5	2.1
Left Side	4,891	11.9	609	13.5	122	12.9	50	21.4
Top	1,964	4.8	1,061	23.6	177	18.7	24	10.3
Undercarriage	263	0.6	22	0.5	3	0.3	0	0.0
Underride	66	0.2	2	0.0	2	0.2	0	0.0
Unknown	612	1.5	153	3.4	30	3.2	6	2.6
Total	**41,177**	**100.0**	**4,497**	**100.0**	**946**	**100.0**	**233**	**100.0**
Restraint Used								
Frontal	1,089	64.1	14	63.6	7	46.7	2	50.0
Right Side	178	10.5	3	13.6	2	13.3	0	0.0
Rear	100	5.9	1	4.5	0	0.0	0	0.0
Left Side	219	12.9	1	4.5	1	6.7	2	50.0
Top	79	4.6	0	0.0	4	26.7	0	0.0
Undercarriage	7	0.4	0	0.0	0	0.0	0	0.0
Underride	4	0.2	0	0.0	0	0.0	0	0.0
Unknown	22	13.0	3	13.6	1	6.7	0	0.0
Total	**1,698**	**100.0**	**22**	**100.0**	**15**	**100.0**	**4**	**100.0**
Restraint Use Unknown								
Frontal	7,814	61.2	385	41.0	60	39.2	116	52.2
Right Side	1,649	12.9	177	18.9	23	15.0	27	12.2
Rear	757	5.9	55	5.9	4	2.6	8	3.6
Left Side	1,593	12.5	158	16.8	25	16.3	37	16.7
Top	509	4.0	182	19.4	32	20.9	16	7.2
Undercarriage	179	1.4	49	5.2	7	4.6	4	1.8
Underride	21	0.2	4	0.4	0	0.0	0	0.0
Unknown	249	1.9	28	3.0	2	1.3	14	6.3
Total	**12,711**	**100.0**	**938**	**100.0**	**153**	**100.0**	**222**	**100.0**
Totals								
Frontal	35,640	64.0	2,118	38.1	514	46.1	240	52.3
Right Side	6,952	12.5	913	16.4	156	14.0	53	11.5
Rear	2,376	4.3	254	4.6	38	3.4	13	2.8
Left Side	6,703	12.0	768	13.8	148	13.3	89	19.4
Top	2,552	4.6	1,243	22.4	213	19.1	40	8.7
Undercarriage	449	0.8	71	1.3	10	0.9	4	0.9
Underride	91	0.2	6	0.1	2	0.2	0	0.0
Unknown	883	1.6	184	3.3	33	3.0	20	4.4
Total	**55,646**	**100.0**	**5,557**	**100.0**	**1,114**	**100.0**	**459**	**100.0**

* *Summary of Results*, "Motorcycle Accident Factors Study"—Prepared under contract to the National Center for Statistics and Analysis, NHTSA, by the University of Southern California, September 1980.

Table 35 (1,739)

Ejection, Restraint Type, and Principal Point of Impact for Restrained Passenger Car Occupants

		Principal Impact Point									
		Frontal		Right Side		Rear		Left Side		Top	
	Type Restraint Used	No.	%	No.	%	No.	%	No.	%	No.	%
Not Ejected	Shoulder Belt	62	5.6	9	4.9	4	4.0	14	6.3	7	8.4
	Lap Belt	364	32.7	60	32.8	35	35.0	86	38.6	29	34.9
	Lap & Shoulder Belt	486	43.7	77	42.1	40	40.0	90	40.4	34	41.0
	Child Safety Seat	40	3.6	2	1.1	3	3.0	3	1.3	1	1.2
	Type Unknown	137	12.3	30	16.4	18	18.0	26	11.6	8	9.6
	Total	**1,089**	**97.9**	**178**	**97.3**	**100**	**99.0**	**219**	**98.2**	**79**	**95.2**
Totally Ejected	Shoulder Belt	1	0.1	1	0.5	0	0.0	0	0.0	0	0.0
	Lap Belt	5	0.4	0	0.0	0	0.0	1	0.4	0	0.0
	Lap & Shoulder Belt	6	0.5	2	1.1	0	0.0	0	0.0	0	0.0
	Child Safety Seat	0	0.0	0	0.0	1	1.0	0	0.0	0	0.0
	Type Unknown	2	0.2	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**14**	**1.2**	**3**	**1.6**	**1**	**1.0**	**1**	**0.4**	**0**	**0.0**
Partially Ejected	Shoulder Belt	0	0.0	1	0.5	0	0.0	0	0.0	0	0.0
	Lap Belt	3	0.3	1	0.5	0	0.0	0	0.0	1	1.2
	Lap & Shoulder Belt	3	0.3	0	0.0	0	0.0	1	0.4	3	3.6
	Child Safety Seat	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0
	Type Unknown	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**7**	**0.6**	**2**	**1.1**	**0**	**0.0**	**1**	**0.4**	**4**	**4.8**
Unknown	Shoulder Belt	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Lap Belt	1	0.1	0	0.0	0	0.0	1	0.4	0	0.0
	Lap & Shoulder Belt	1	0.1	0	0.0	0	0.0	1	0.4	0	0.0
	Child Safety Seat	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Type Unknown	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**2**	**0.2**	**0**	**0.0**	**0**	**0.0**	**2**	**0.9**	**0**	**0.0**
	Total	**1,112**	**100.0**	**183**	**100.0**	**101**	**100.0**	**223**	**100.0**	**83**	**100.0**

Table 35 (Con't) (1,739)

Ejection, Restraint Type, and Principal Point of Impact for Restrained Passenger Car Occupants

		Principal Impact Point							
		Under-carriage		Underride		Unknown		Total	
	Type Restraint Used	No.	%	No.	%	No.	%	No.	%
Not Ejected	Shoulder Belt	1	14.3	0	0.0	3	11.5	100	5.8
	Lap Belt	0	0.0	0	0.0	6	23.1	580	33.3
	Lap & Shoulder Belt	2	28.6	1	25.0	10	38.5	740	42.6
	Child Safety Seat	1	14.3	0	0.0	1	3.8	51	2.9
	Type Unknown	3	42.8	3	75.0	2	7.7	227	13.1
	Total	**7**	**100.0**	**4**	**100.0**	**22**	**84.6**	**1,698**	**97.6**
Totally Ejected	Shoulder Belt	0	0.0	0	0.0	0	0.0	2	0.1
	Lap Belt	0	0.0	0	0.0	0	0.0	6	0.3
	Lap & Shoulder Belt	0	0.0	0	0.0	1	3.8	9	0.5
	Child Safety Seat	0	0.0	0	0.0	0	0.0	1	0.0
	Type Unknown	0	0.0	0	0.0	2	7.7	4	0.2
	Total	**0**	**0.0**	**0**	**0.0**	**3**	**11.5**	**22**	**1.3**

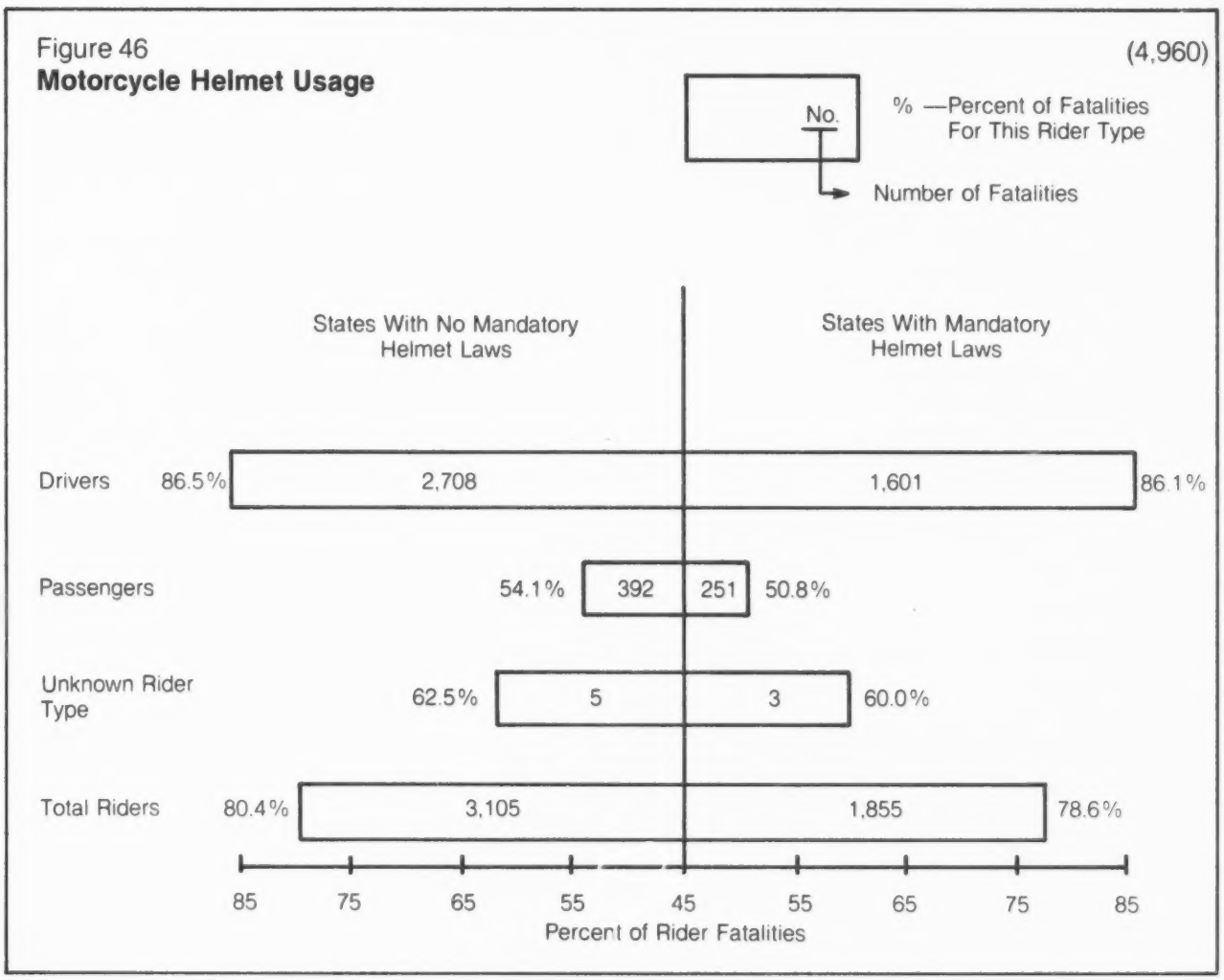
Table 35 (Con't) (1,739)

Ejection, Restraint Type, and Principal Point of Impact for Restrained Passenger Car Occupants

		Principal Impact Point							
		Under-carriage		Underride		Unknown		Total	
	Type Restraint Used	No.	%	No.	%	No.	%	No.	%
Partially Ejected	Shoulder Belt	0	0.0	0	0.0	1	3.8	2	0.1
	Lap Belt	0	0.0	0	0.0	0	0.0	5	0.3
	Lap & Shoulder Belt	0	0.0	0	0.0	0	0.0	7	0.4
	Child Safety Seat	0	0.0	0	0.0	0	0.0	1	0.0
	Type Unknown	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**1**	**3.8**	**15**	**0.9**
Unknown	Shoulder Belt	0	0.0	0	0.0	0	0.0	0	0.0
	Lap Belt	0	0.0	0	0.0	0	0.0	2	0.1
	Lap & Shoulder Belt	0	0.0	0	0.0	0	0.0	2	0.1
	Child Safety Seat	0	0.0	0	0.0	0	0.0	0	0.0
	Type Unknown	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**4**	**0.2**
	Total	**7**	**100.0**	**4**	**100.0**	**26**	**100.0**	**1,739**	**100.0**

Figure 46 (4,960)

Motorcycle Helmet Usage



VIII. Non-occupants

Nonoccupants refers to persons involved in fatal accidents who were not occupants of moving vehicles. This category is composed of pedestrians, pedalcyclists and other types of nonoccupants such as occupants of parked vehicles, persons riding on animals and persons riding in animal-drawn conveyances. Each of the major nonoccupant types is treated separately in this chapter.

Nonoccupants as a whole accounted for 9,164 fatalities in 1980, which is 17.9 percent of the total number of fatalities. Of these, 88.1 percent (8,071) were pedestrians.

Table 36 compares involvement and fatalities of occupants and nonoccupants by age. Vehicle occupants appear to be more concentrated in the three age groups comprising the 15 to 44 year olds (72.6 percent) while nonoccupants are more distributed and exceed occupant percentages in every age group except the three. A similar observation can be made for fatalities. Perhaps the most notable age group of nonoccupants is the 65 years old and older for which there is a relatively larger proportion of fatalities than involvements and both are far greater than in the equivalent occupant age group.

Figure 47 divides the nonoccupant fatalities into its component groups—pedestrians, pedalcyclists, and other nonoccupants—by land use. Nearly twice as many pedestrians die in urban areas than rural areas. Only a third more pedalcyclists are fatally involved in accidents in urban areas when compared to rural areas.

Table 37 shows that approximately 80 percent of the nonoccupant fatalities occurred away from intersections. 88.6 percent of those occurred on the roadway, in a crosswalk, or in a parking lane. The table presents a complete breakdown of pedestrian, pedalcyclist, and other nonoccupants by preschool, school, and post school age groups and by location.

The remainder of this chapter is in three sections corresponding to the three component groups of nonoccupants.

Figure 47 (9,164)

Nonoccupant Fatalities by Land Use

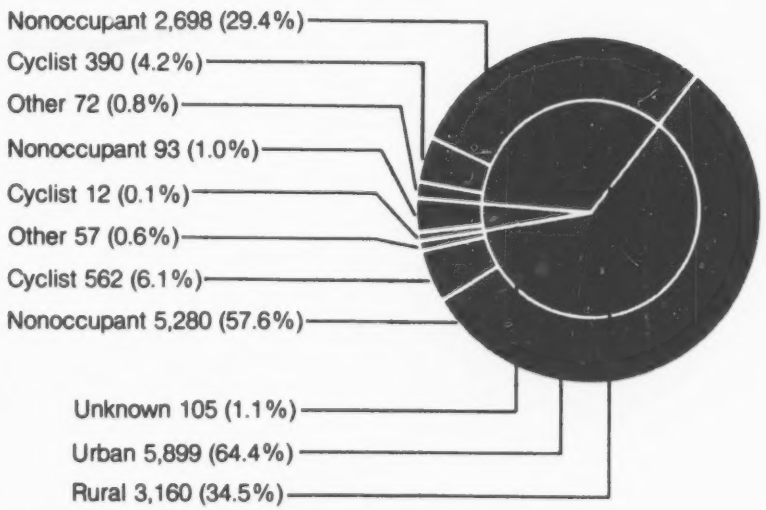


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Table 36

Nonoccupant Fatalities Relative to Occupant Fatalities

Age	Occupants				Nonoccupants			
	All Involved		Fatalities		All Involved		Fatalities	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
4 or Less	2,203	2.1	698	1.7	481	4.7	440	4.8
5-14	5,005	4.9	1,197	2.8	1,582	15.4	1,412	15.4
15-24	41,659	40.4	16,578	39.6	2,199	21.5	1,867	20.4
25-34	22,362	21.7	9,286	22.2	1,381	13.5	1,187	13.0
35-44	10,854	10.5	4,347	10.4	832	8.1	723	7.9
45-54	7,716	7.5	3,301	7.9	847	8.3	772	8.4
55-64	6,000	5.8	2,793	6.7	853	8.3	804	8.8
65 and Over	6,053	5.9	3,563	8.5	1,824	17.8	1,778	19.4
Unknown	1,172	1.1	150	3.6	241	2.4	181	2.0
Total	**103,024**	**100.0**	**41,913**	**100.0**	**10,240**	**100.0**	**9,164**	**100.0**

Table 37 (9,164)

Nonoccupant Fatalities by Location and Age

	Location		Pedestrian Fatalities				Pedalcyclist Fatalities				Other Nonoccupant Fatalities				
			4 or Less	5-17	18 or More	Unknown	4 or Less	5-17	18 or More	Unknown	4 or Less	5-17	18 or More	Unknown	Total
Intersection	In Crosswalk	No.	12	62	474	8	1	13	3	0	3	1	0	0	577
		%	3.1	4.8	7.6	4.5	3.4	2.3	0.8	0.0	16.7	2.6	0.0	0.0	6.3
	Sidewalk, Median, Island	No.	1	12	52	1	1	3	1	0	0	0	1	0	72
		%	0.3	0.9	0.8	0.6	3.4	0.5	0.3	0.0	0.0	0.0	1.4	0.0	0.8
	In Roadway	No.	32	146	650	26	2	121	78	1	1	3	1	0	1,061
		%	8.1	11.3	10.5	14.8	6.9	21.5	21.3	20.0	5.6	7.7	1.4	0.0	11.6
	Unknown	No.	0	7	18	1	0	3	0	0	0	1	4	0	34
		%	0.0	0.5	0.3	0.6	0.0	0.5	0.0	0.0	0.0	2.6	5.6	0.0	0.4
Non-Intersection	In Crosswalk	No.	1	16	48	1	0	0	0	0	0	0	0	0	66
		%	0.3	1.2	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
	Sidewalk, Median, Island	No.	13	41	122	0	2	3	2	0	4	1	3	0	191
		%	3.3	3.2	2.0	0.0	6.9	0.5	0.5	0.0	22.2	2.6	4.2	0.0	2.1
	Bike Path	No.	0	2	0	0	0	1	1	0	0	0	0	0	4
		%	0.0	0.2	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0
	On Road Shoulder	No.	9	62	360	5	0	17	15	0	3	12	36	0	519
		%	2.3	4.8	5.8	2.8	0.0	3.0	4.1	0.0	16.7	30.8	50.0	0.0	5.7
	Outside Trafficway	No.	5	22	45	0	0	0	1	0	1	1	9	0	84
		%	1.3	1.7	0.7	0.0	0.0	0.0	0.3	0.0	5.6	2.6	12.5	0.0	0.9
	In Roadway	No.	315	914	4,356	134	23	384	251	4	6	20	16	0	6,423
		%	80.2	70.6	70.2	76.1	79.3	68.1	68.6	80.0	33.3	51.3	22.2	0.0	70.1
	In Parking Lane	No.	0	3	13	0	0	0	2	0	0	0	1	0	19
		%	0.0	0.2	0.2	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.4	0.0	0.2
	Unknown	No.	2	3	30	0	0	0	0	0	0	0	0	0	35
		%	0.5	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Unknown		No.	3	5	39	0	0	19	12	0	0	0	1	0	79
		%	0.8	0.4	0.6	0.0	0.0	3.4	3.3	0.0	0.0	0.0	1.4	0.0	0.9
Total		**No.**	**393**	**1295**	**6,207**	**176**	**29**	**564**	**366**	**5**	**18**	**39**	**72**	**0**	**9,164**
		%	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Section A. Pedestrians

A total of 8,827 pedestrians were involved in 7,903 fatal accidents in 1980. The results of these involvements was 91.4 percent (8,071) were killed.

Figure 48 depicts two characteristics of pedestrians in fatal accidents. Figure 48a shows that in one third of the 6,500 fatal accidents, pedestrians above the age of 15 were either judged by the investigating police to have been drinking or had a positive BAC test result. Figure 48b shows that fatal pedestrian accidents are more frequent during the daytime hours (54.5 percent) than during the nighttime hours (45.1 percent).

Table 38 tabulates pedestrian fatalities in such a way that it can be seen that the youngest pedestrian fatalities have a greater proportion occurring away from an intersection and on the roadway than any other age group. The age group that had the greatest percentage of fatalities at intersections was the 5 to 9 year olds, and again, on the roadway. The age group with the greatest proportion of off roadway fatalities was the 10 to 17 year olds. These occurred away from an intersection.

Figure 49 examines fatally injured pedestrians with known BAC test results. Ninety-five (95) of these 2,776 pedestrians were 14 years old or less with 5.3 percent of them having had a BAC greater than or equal to .10. Overall, 73.3 percent of these pedestrians were males and 51.6 percent of the males had BAC levels greater than or equal to .10.

Figure 48 (6,500)

Characteristics of Pedestrians in Fatal Accidents

a. Drinking Involved?

b. Time of Day of Accident (7,903)

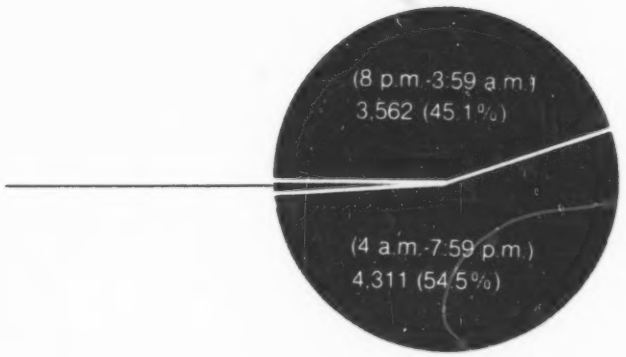

Table 38 (8,071)

Pedestrian Fatalities by Age and Location

Age	Intersection						Non-Intersection						Total	
	On Roadway		Off Roadway		Unknown		On Roadway		Off Roadway		Unknown			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
4 or Less	44	11.2	1	0.2	0	0.0	316	80.4	30	7.6	2	0.5	393	100.0
5-9	110	18.9	4	0.7	4	0.7	433	74.4	31	5.3	0	0.0	582	100.0
10-17	98	13.7	8	1.1	3	0.4	500	70.1	101	14.2	3	0.4	713	100.0
18-44	285	9.5	21	0.7	6	0.2	2,321	77.4	344	11.5	20	0.7	2,997	100.0
45-64	299	20.2	18	1.2	4	0.3	1,025	69.2	130	8.8	5	0.3	1,481	100.0
65 or More	540	31.2	13	0.8	8	0.5	1,071	61.9	92	5.3	5	0.3	1,729	100.0
Unknown	34	19.3	1	0.6	1	0.6	135	76.7	5	2.8	0	0.0	176	100.0
Total	**1,410**	**17.5**	**66**	**0.8**	**26**	**0.3**	**5,801**	**71.9**	**733**	**9.1**	**35**	**0.4**	**8,071**	**100.0**

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Figure 49 (2,776)

Pedestrian Fatalities With Known Alcohol Test Results by Age and Sex

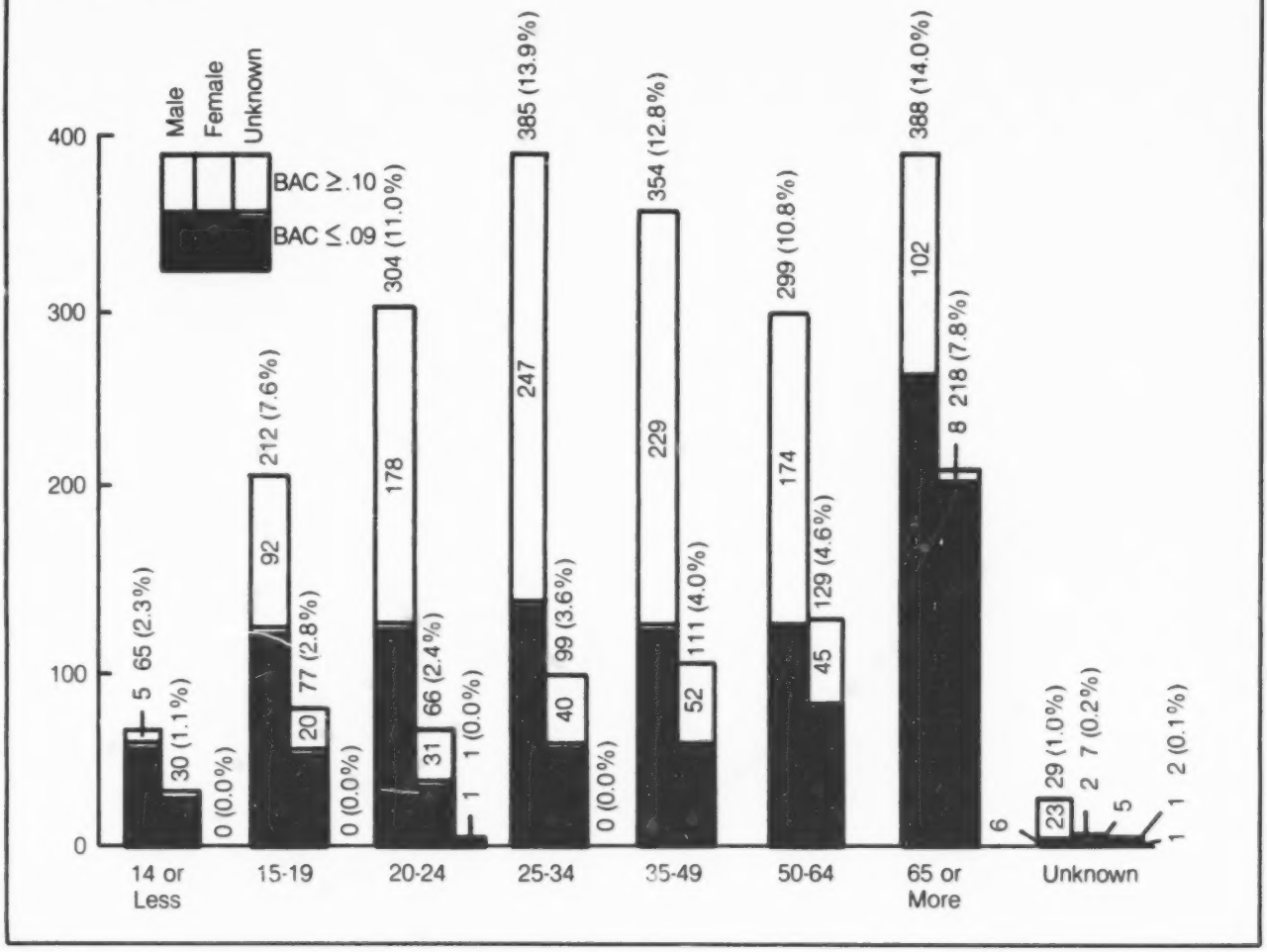

Table 39 (964)

Pedalcyclist Fatalities by Age and Location

Age	Intersection						Non-Intersection						Total	
	On Roadway		Off Roadway		Unknown		On Roadway		Off Roadway		Unknown			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
4 or Less	3	10.3	1	3.4	0	0.0	23	79.3	2	6.9	0	0.0	29	100.0
5-9	43	23.1	0	0.0	2	1.1	131	70.4	10	5.4	0	0.0	186	100.0
10-17	91	24.1	3	0.8	1	0.3	253	66.9	30	7.9	0	0.0	378	100.0
18-44	58	23.5	0	0.0	0	0.0	163	66.0	26	10.5	0	0.0	247	100.0
45-64	12	15.6	1	1.3	0	0.0	60	77.9	4	5.2	0	0.0	77	100.0
65 or More	11	26.2	0	0.0	0	0.0	30	71.4	1	2.4	0	0.0	42	100.0
Unknown	1	20.0	0	0.0	0	0.0	4	80.0	0	0.0	0	0.0	5	100.0
Total	**219**	**23.7**	**5**	**0.5**	**3**	**0.3**	**664**	**68.9**	**73**	**7.5**	**0**	**0.0**	**964**	**100.0**

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Section B. Pedalcyclists

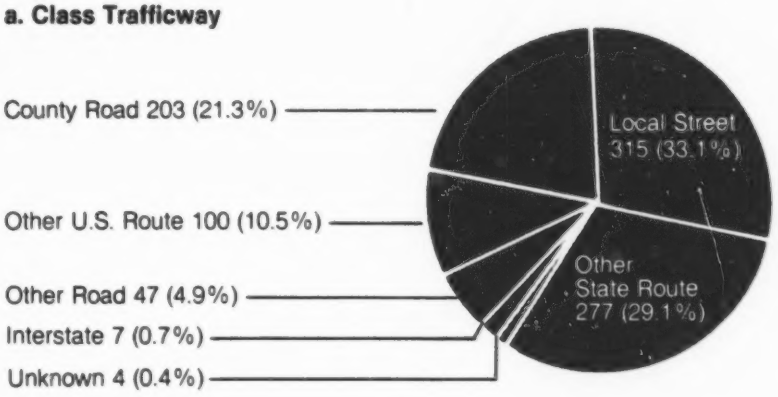
The number of pedalcyclists involved in the 953 fatal accidents in 1980 was 1,025. 964 (94.0 percent) of these were killed, with males comprising 81.0 percent of them.

While only 19.5 percent of all fatal accidents occurred on local streets, Figure 50a shows that a much higher percentage (33.1 percent) of fatal accidents involving a pedalcyclist were on these roadway types. (The category "Other" includes some major arteries, other limited access roads, and unknown data in the FARS file.) Figure 50b shows that about 71.7 percent of these fatalities occurred during the hours between 4 am and 8 pm.

Table 39 provides the distribution of pedalcyclist fatalities by location and age. Similar to pedestrians, the greatest proportion of nonintersection, on roadway fatalities of the known age groups occurred in the 4 year old or less group. Only 24.5 percent of the pedalcyclist fatalities occurred at an intersection with the majority of these occurring on the roadway. The number of school age teenagers killed off the roadway was approximately the same as those older than school age.

Figure 50 (953)
Characteristics of Pedalcyclists in Fatal Accidents

a. Class Trafficway



b. Time of Day of Accident (964)

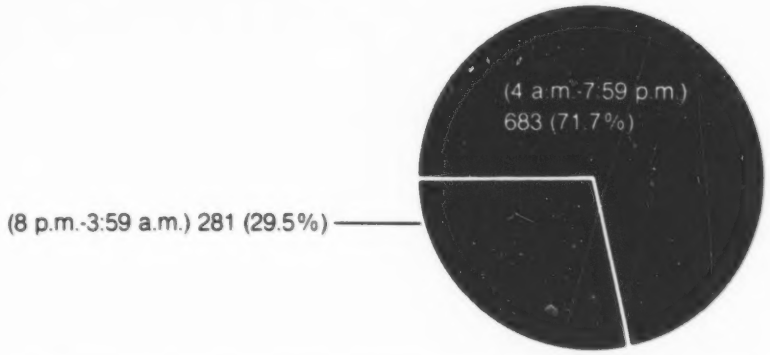


Figure 51 (241)
Fatal Accidents Involving Other Nonoccupants by Class Trafficway

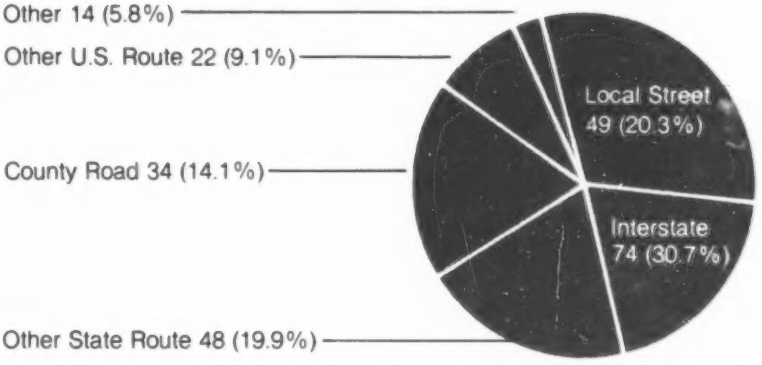


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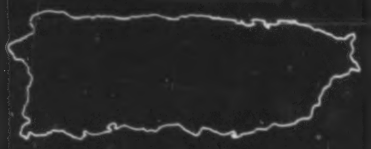
Table 40 (129)

Other Nonoccupant Fatalities by Age and Location

Age	Intersection						Non-Intersection						Total	
	On Roadway		Off Roadway		Unknown		On Roadway		Off Roadway		Unknown			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
4 or Less	4	22.2	0	0.0	0	0.0	6	33.3	8	44.4	0	0.0	18	100.0
5-9	1	11.1	0	0.0	0	0.0	6	66.7	2	22.2	0	0.0	9	100.0
10-17	3	10.0	0	0.0	1	3.3	14	46.7	12	40.0	0	0.0	30	100.0
18-44	1	2.1	1	2.1	1	2.1	10	21.3	34	72.3	0	0.0	47	100.0
45-64	0	0.0	0	0.0	3	16.7	4	22.2	11	61.1	0	0.0	18	100.0
65 or More	0	0.0	0	0.0	0	0.0	3	42.8	4	57.2	0	0.0	7	100.0
Unknown	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	100.0
Total	**9**	**7.0**	**1**	**0.8**	**5**	**3.9**	**43**	**33.3**	**71**	**55.0**	**0**	**0.0**	**129**	**100.0**

IX. Puerto Rico



The information on the fatal accident experience in Puerto Rico is treated separately in this report to conform to the practice of other National statistics systems.

This chapter examines the fatal accidents that occurred in Puerto Rico in 1980. A summary is presented below:

- The number of fatal accidents was 483, a decrease of 1.8 percent from 1979.
- There were 509 fatalities, 43.8 percent of which were nonoccupants.
- Males accounted for 78.4 percent of all fatalities. The distribution of fatalities by age indicates that males outnumber females in all age groups by a wide margin except for the 4 and under group wherein they were evenly divided.
- Of the total number of vehicles involved in the fatal accidents, 74.7 percent were passenger cars. The next highest group of vehicles was light trucks.
- 28.8 percent of the occupants of passenger cars were killed.
- Drinking was reported involved for 19.1 percent of the drivers and most drivers held valid driver's licenses.
- The nonoccupant group (which includes pedestrians, pedalcyclists and other types of nonoccupants) had 223 fatalities in 1980. As in the national figures, the majority of these fatalities occurred on the roadway, away from intersections.
- 27.3 percent of the pedestrians involved in the fatal accidents were reported to have been drinking, as opposed to 19.1 percent of the drivers similarly reported.
- Over half of the fatal accidents involving the nonoccupant group occurred during the daytime.
- Of the 227 pedestrians involved in fatal accidents, 79.3 percent were 25 years old or over.

Figure 52
Fatalities and Fatal Accidents for 1975-1980 (Puerto Rico)

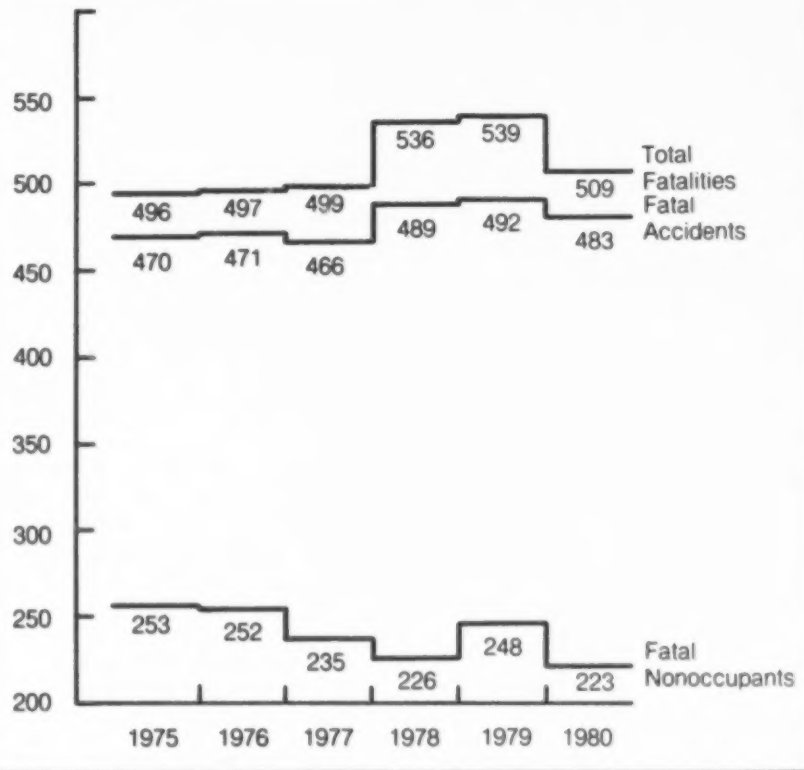


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Table 41
Vehicles, Occupants and Occupant Fatalities in Fatal Accidents (Puerto Rico)

Vehicle Type	Number of Vehicles		Number of Occupants		Number of Occupant Fatalities	
	No.	%	No.	%	No.	%
Passenger Cars	458	74.7				
Motorcycles	36	5.9				
Other Motorized Cycles	0	0.0	0	0.0	0	0.0
Buses	5	0.8	10	1.0	0	0.0
Special Vehicles	23	3.8	67	6.8	20	7.0
Light Trucks	50	8.2	64	6.5	8	2.8
Medium Trucks	20	3.3	20	2.0	1	0.4
Heavy Trucks	11	1.8	12	1.2	3	1.0
Unknown Type Truck	10	1.6	10	1.0	1	0.4
Unknown	0	0.0	0	0.0	0	0.0
Total	**613**	**100.0**	**988**	**100.0**	**286**	**100.0**

Figure 53 (509)
1980 Fatalities by Age and Sex (Puerto Rico)

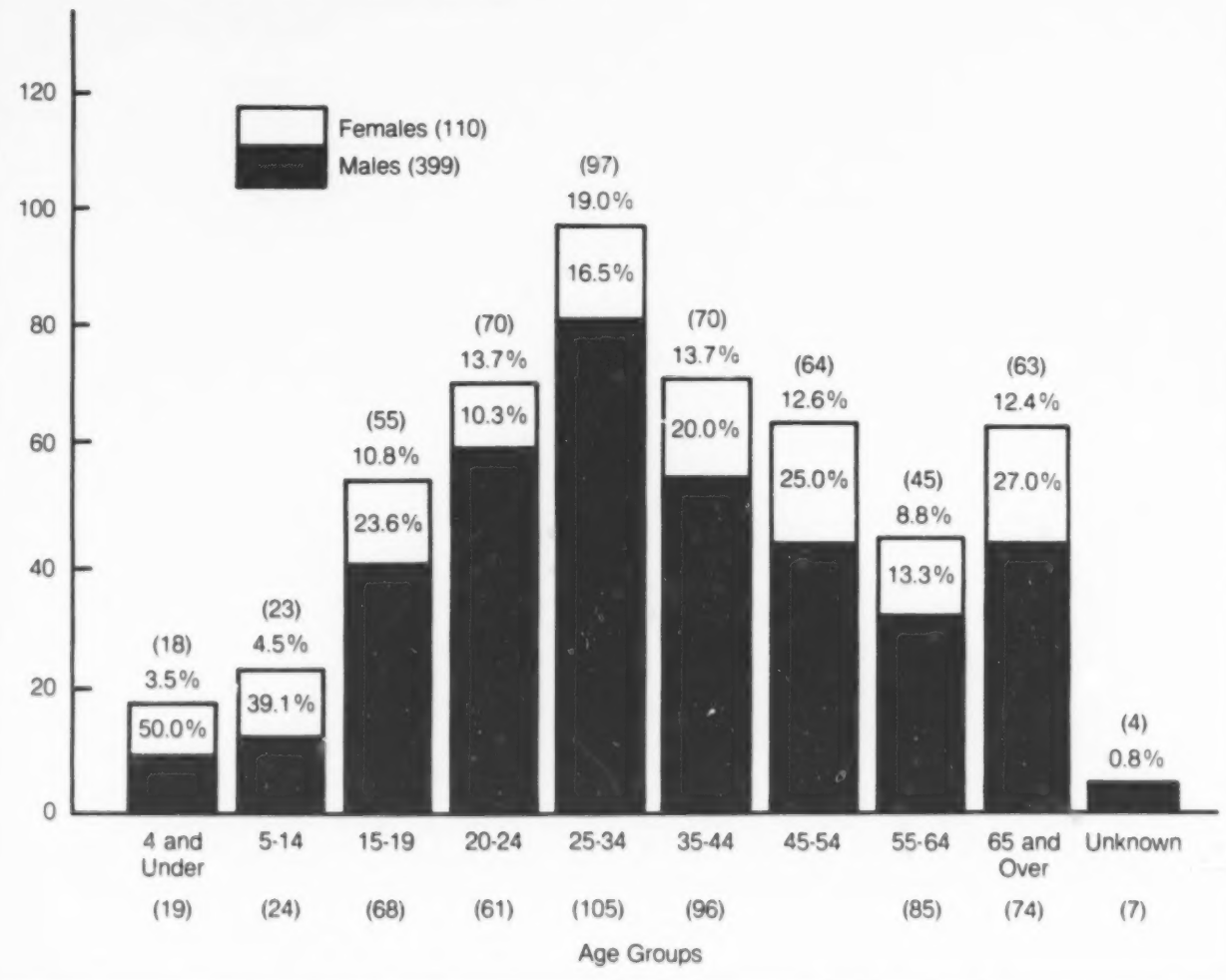

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Table 42 (602)

Drinking Invovement and License Status of Drivers Involved in Fatal Accidents (Puerto Rico)

		Drinking Not Involved								
		14 or Less	15-19	20-24	25-34	35-49	50-64	65 or More	Unknown	Total
Licensed	No.	0	34	73	135	114	49	12	2	419
	%	0.0	8.1	17.4	32.2	27.2	11.7	2.9	0.5	100.0
Suspended License	No.	0	0	1	2	3	2	0	0	8
	%	0.0	0.0	12.5	25.0	37.5	25.0	0.0	0.0	100.0
Revoked License	No.	0	0	0	0	1	0	0	0	1
	%	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	100.0
Expired License	No.	0	0	2	0	0	0	0	0	2
	%	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
No License Required	No.	0	0	0	1	0	0	0	0	1
	%	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
Other	No.	0	18	18	14	3	3	0	0	56
	%	0.0	32.1	32.1	25.0	5.4	5.4	0.0	0.0	100.0
Total	**No.**	**0**	**52**	**94**	**152**	**121**	**54**	**12**	**2**	**487**
	%	**0.0**	**10.7**	**19.3**	**31.2**	**24.8**	**11.1**	**2.5**	**0.4**	**100.0**

Table 42 (Con't) (602)

Drinking Invovement and License Status of Drivers Involved in Fatal Accidents (Puerto Rico)

		Drinking Involved								
		14 or Less	15-19	20-24	25-34	35-49	50-64	65 or More	Unknown	Total
Licensed	No.	0	3	19	26	23	8	0	1	80
	%	0.0	3.8	23.8	32.5	28.8	10.0	0.0	1.3	100.0
Suspended License	No.	0	0	0	2	0	0	0	0	2
	%	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
Revoked License	No.	0	0	0	1	0	0	0	0	1
	%	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	100.
Expired License	No.	0	0	1	0	0	0	0	0	1
	%	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
No License Required	No.	0	0	0	0	0	0	0	0	0
	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Other	No.	0	1	9	11	7	3	0	0	31
	%	0.0	3.2	29.0	35.5	22.6	9.7	0.0	0.0	100.0
Total	**No.**	**0**	**4**	**29**	**40**	**30**	**11**	**0**	**1**	**115**
	%	**0.0**	**3.5**	**25.2**	**34.8**	**26.1**	**9.6**	**0.0**	**0.9**	**100.0**

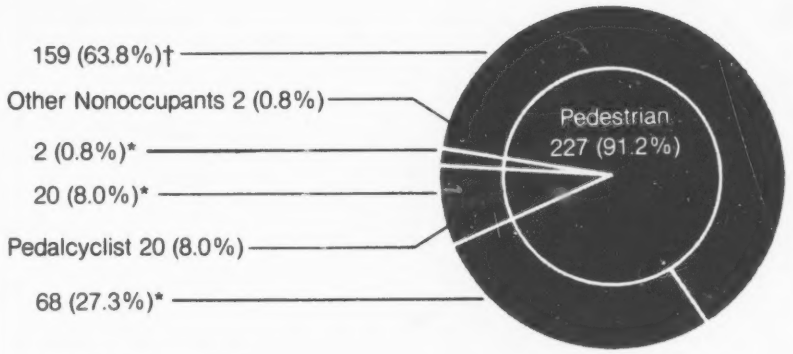
Table 43 (223)

Nonoccupant Fatalities by Location (Puerto Rico)

	Location	Pedestrian Fatalities (%)	Pedalcyclist Fatalities (%)	Other Non-occupant Fatalities (%)	Total (%)
Intersection	In Crosswalk	1 (.5)	0 (0.0)	0 (0.0)	1 (0.4)
	Sidewalk, Median, Island	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	In Roadway	24 (11.8)	4 (22.2)	1 (100.0)	29 (13.0)
Non-Intersection	In Crosswalk	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Sidewalk, Median, Island	5 (2.5)	0 (0.0)	0 (0.0)	5 (2.2)
	On Road Shoulder	13 (6.4)	1 (5.6)	0 (0.0)	14 (6.3)
	Outside Trafficway	3 (1.5)	0 (0.0)	0 (0.0)	3 (1.3)
	Roadway	156 (76.5)	13 (72.2)	0 (0.0)	169 (75.8)
	Unknown	2 (1.0)	0 (0.0)	0 (0.0)	2 (0.9)
	Total	**204 (100.0)**	**18 (100.0)**	**1 (100.0)**	**223 (100.0)**

Figure 54 (249)

Nonoccupant Fatal Accidents by Drinking Involvement (Puerto Rico)



*Drinking Not Involved
†Drinking Involved

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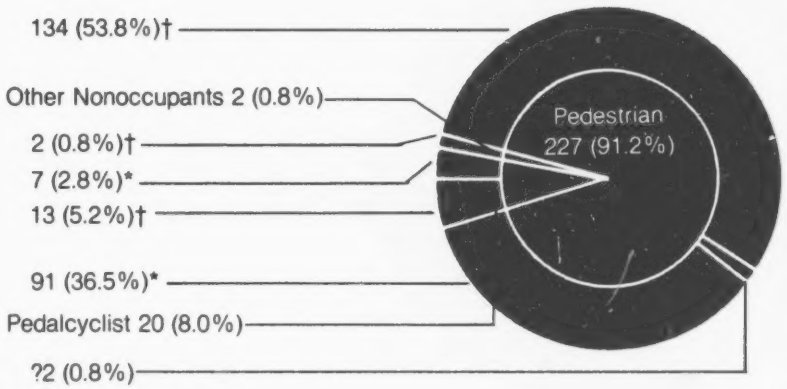
According to FARS data as shown in Figure 54, nearly a third of the pedestrian fatal accidents involved a pedestrian who had been drinking. Neither pedalcyclists or other nonoccupants had any reported drinking involvement.

Figure 55 shows 39.3 percent of the nonoccupant fatal accidents to have occurred during nighttime hours. Again, pedestrians comprised the major portion of this number. Also, the proportion of pedestrian fatal accidents occurring during nighttime hours was greater than in the case of pedalcyclist fatal accidents.

The median age of the 227 pedestrians in fatal accidents is in the 35-49 year old age group. This is in contrast to that of drivers which is the 25-34 year old age group. Figure 56 also shows that 65.2 percent of pedestrian involved fatal accidents occurred with a pedestrian 35 years old or older and only 19.8 percent with a pedestrian 24 years or younger.

Figure 55 (240)

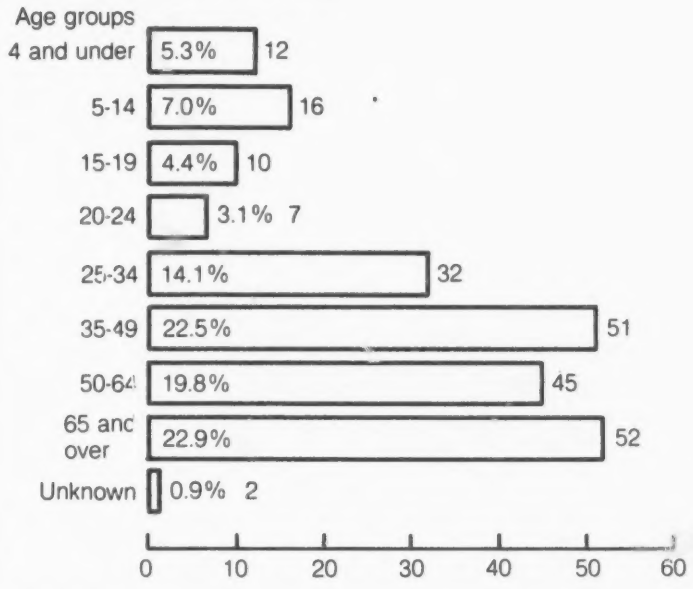
Nonoccupant Fatal Accidents by Time of Day (Puerto Rico)



*(8:00 p.m.-3:59 a.m.)
†(4:00 a.m.-7:49 p.m.)
? Unknown

Figure 56 (227)

Age Distribution of Pedestrians in Fatal Accidents (Puerto Rico)



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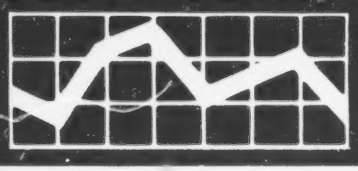
X. Selected Comparisons 1975-1980



This chapter presents a series of tabulations and graphs that depict selected trends in motor vehicle fatalities in the United States. The information is presented in five categories:

1. Total U.S. Fatalities
2. Alcohol (Proxy) Fatalities
3. Occupant Fatalities by Vehicle Type
4. Fatalities by First Harmful Event
5. Fatalities by Class Trafficway

Twelve month moving totals were used to smooth the data and display trends. In Figures 57 through 61, points plotted for each month depict the sum of that month's fatality counts and the preceding 11 months' counts. This procedure removes most of the seasonal effects and reduces the random variability in the series of counts. A month to month increase (decrease) in the 12-month moving total occurs when there is a corresponding increase (decrease) in the current month's death count from the same month's count in the preceding year. This means that an increase (decrease) in the count from one month to the next month in the current year may not be reflected in the graph of the moving 12-month total.

Figure 57 shows the overall National fatality trend. The 12-month moving total of National fatalities shows, with the exception of two short periods (October 1976 to February 1977 and January to March 1978), an almost continuous increase from 44,525 fatalities in December 1975 to 51,858 fatalities in May 1979. This represents an increase of 16.5 percent in three and a half years. During this same period, vehicle miles of travel increased 17.7 percent thus resulting in only minor changes in the number of fatalities per unit of travel (fatality rate).

The two periods in which a dip in the fatality trend occurred, from October 1976 to February 1977 and from January to March 1978, do not have a corresponding reduction in vehicle miles of travel. The two periods, however, do correspond to especially severe winter conditions in the United States. Perhaps speed, if not amount, of travel was reduced during this period and resulted in less severe accidents.

From May 1979, the 12-month moving total of fatalities experienced a series of sharp declines and rises without following a definite pattern. The last four months of 1980 shows a large reduction in fatalities, but preliminary data for the beginning of 1981 indicate a reversal of this trend.

The trends in Figures 58a and b monitor the changes in a subset of the total traffic fatalities, namely, alcohol-related fatals. Figure 58a presents the ratio for all dead drivers who were at .10 BAC or above versus all dead drivers who had a known BAC. Figure 58b presents the data for all single vehicle nighttime (8:00 pm–4:00 am) total accidents as a function of all fatal accidents. This subset of data has traditionally been used as a surrogate measure for alcohol involvement, because of the large number of driver fatals which do not have a BAC value reported. What is so impressive about these two figures is the uniformity of the shape of the two curves. Both the BAC measure and the surrogate show that the proportion of highway fatalities that are alcohol-related has been increasing since mid-1978. This constant increase since mid-1978 differs from the overall fatality figures for the same period which suggests a slight decrease for the same period. These data, taken as a whole, suggest that for whatever reason, the proportion of alcohol-related fatal accidents has increased dramatically in the last 18 months.

Occupant fatalities by vehicle type is shown in Figure 59. Because of the large range of occupant fatalities attributed to the various vehicle classes, it is more convenient to present the data in three figures. Figure 59a shows the total occupant fatalities are very much dependent upon the passenger car fatalities which comprise the majority of the total. Both categories reached a peak in April of 1979. For passenger cars, this peak was at 111 percent of the December 1975 figure but for the total, the rise was much more steep, peaking at 119 percent of the December 1975 figure. Also, the total had a higher peak 16 months later in August of 1980. However, both have experienced a decline since that time.

Figure 59b shows light truck, all motorcycle types, and specific body

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Figure 57
12-Month Moving Totals—Total Fatalities

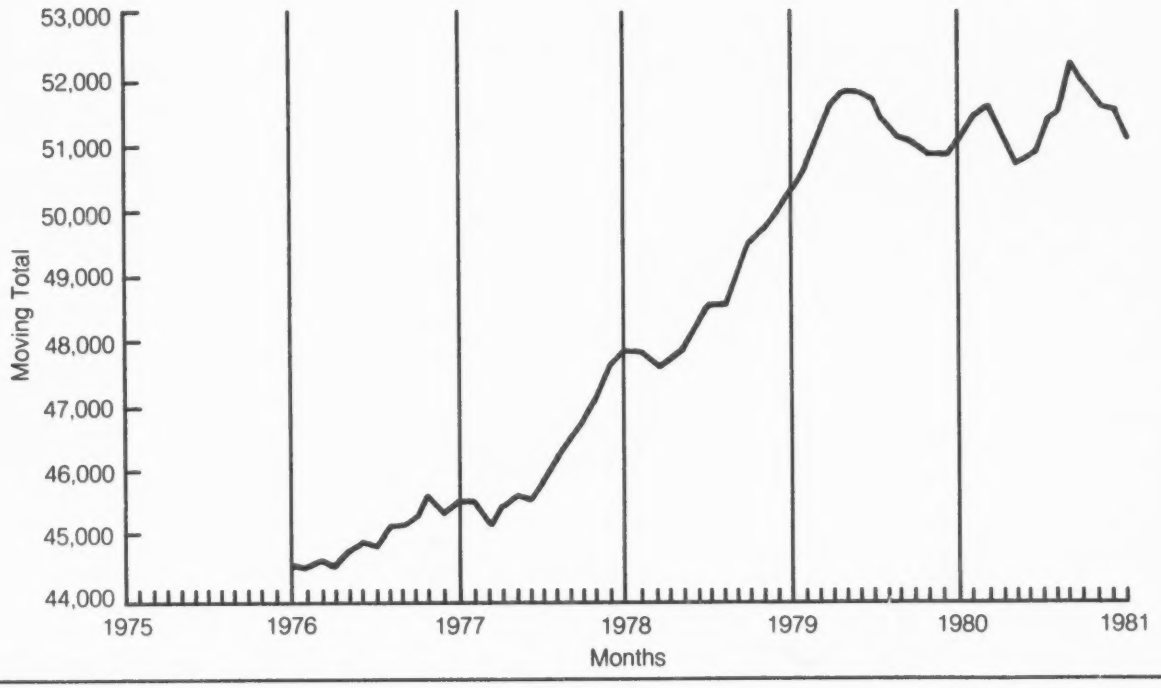
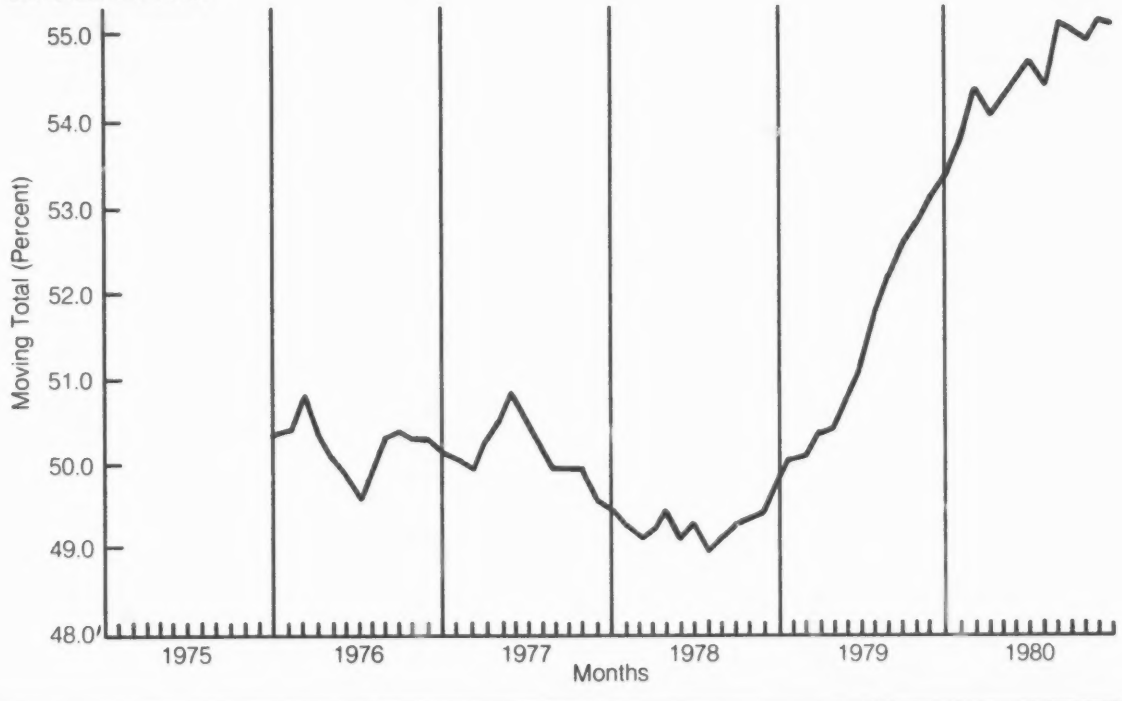


Figure 58
12-Month Moving Total—Alcohol (Proxy) Fatalities

a. Actual Measure



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type "motorcycle" occupant fatalities to be climbing steadily. The growth in these vehicle type curves cannot be rationalized with any degree of certainty. However, the popularity of these vehicle classes has certainly had some effect as graphically shown by the widening margin between the curves for all motorcycle types and the specific body type "motorcycle." This margin of difference is made up by mopeds, minibikes, motorscooters and other motorized cycles. It is also possible that relaxation of the mandatory motorcycle helmet laws has had some effect on the occupant fatality curves for the motorcycle types and "motorcycles."

The curves for buses and medium trucks in Figure 59c appear fairly constant although medium trucks experienced an increase in the 1976 through 1978 period. Heavy truck occupant fatalities decreased to a point below that of May 1978. The "Other" curve reflects a redefinition of body types within the class as depicted by the increase during 1980. This is the period during which on/off road vehicles became part of the special vehicles class, a subset of "Others." Also, the drastic reduction in "Unknowns" during 1978 reflects the significant change in the level of specificity of body type allowing a greater number of vehicles to be properly and uniquely identified in the FARS file.

The accident types used in Figure 60 are grouped logically according to the reported first harmful event. The five major groups are:

1. Collisions between a motor vehicle and another object not fixed (other than a motor vehicle or a nonoccupant such as an animal, parked vehicle, or train).
2. Collisions among two or more motor vehicles.
3. Collisions with a nonoccupant.
4. Collisions involving a fixed object.
5. Non-Collisions.

Most of the fatality trends related to first harmful event tend to conform to the overall fatality trend, an increase from December 1975 to the spring of 1979 followed by a decline to November 1979. The nonoccupant fatality trend provides the only exception. The nonoccupant trend actually shows a small decrease (2 percent) from December 1975 to June 1977 followed by an increase of 7.5 percent to December 1979.

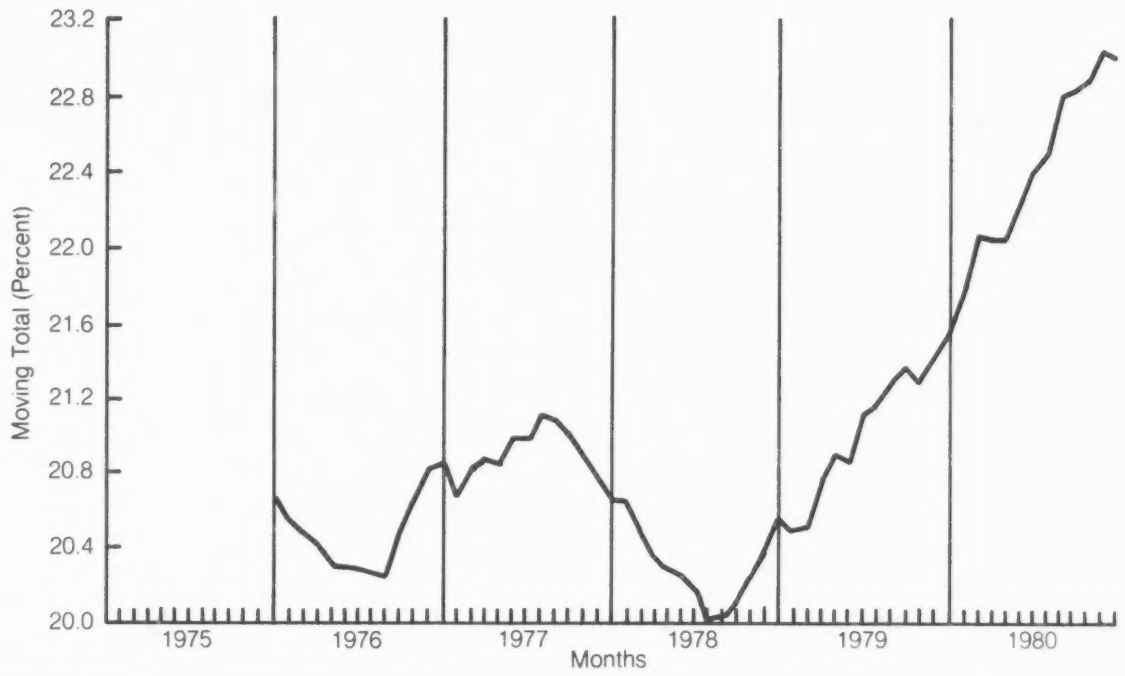
The trend in multi-vehicle accident fatalities had the largest increase in the spring of 1979 and also the greatest decrease in May 1980 Fatalities resulting from collisions with fixed objects closely paralleled the National trend to the spring of 1979, but fell only slightly in the fall of 1980. Collision with motor vehicle in transport and collision with fixed objects contributed the most to the overall fatalities. The noncollision trend rose modestly in the fall of 1977 and again in the latter half of 1980. Collisions with other objects not fixed gradually increased by 23.8 percent in the 42 months following December 1975 but has declined to only a 7.5 percent increase overall as of December 1980.

The purpose of Figure 61 trends is to present in a concise manner the type of highway on which fatal accidents occur and to show if any of the road systems experience a greater number of fatal accidents and more significant changes than the others.

As with the overall National trend, the fatality trends for most class trafficways display a general increase over the three and one half year period from December 1975 to May 1979 and a leveling off from May 1979 to

Figure 58
12-Month Moving Total—Alcohol (Proxy) Fatalities

b. Surrogate Measure



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December 1980. A noticeable exception is the fatality trend on local streets. Here the trend decreases gradually (about 11 percent) from December 1975 to October 1977, rises to near the original value in the spring of 1979, then remains steady through December 1980.

The trend on the Interstate System shows the greatest increase (47 percent) to the spring of 1979 with no appreciable change since then. The fatality trends on other state routes and other U.S. routes most closely followed the National trend having increases, respectively, of 20 percent and 15 percent to the spring of 1979 and a declining pattern ever since. The trend on other roads has a singular pattern due maybe to the number of trafficways included in this group. The trend is fairly level during 1976, rises sharply (41 percent) during 1977, shows no large changes for 1978 and 1979, and then a decline of 12 percent during 1980. Finally, the trend on county roads shows a continuous increase over the last three years.

Figure 59a
12-Month Moving Total—Occupant Fatalities by Vehicle Type (Passenger Cars and Total)

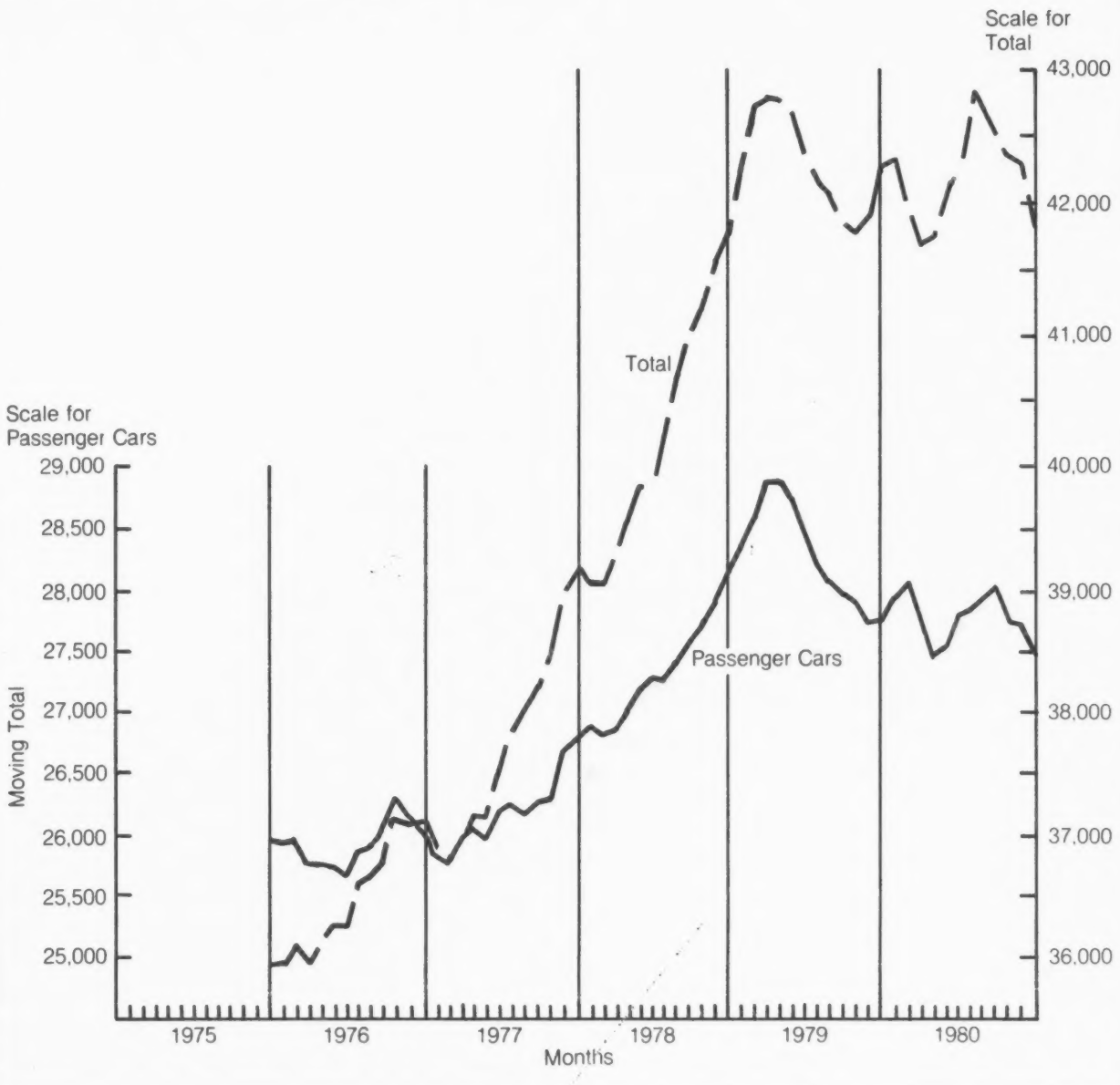

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Figure 59b

12-Month Moving Total—Occupant Fatalities by Vehicle Type (Motorcycles and Light Trucks)

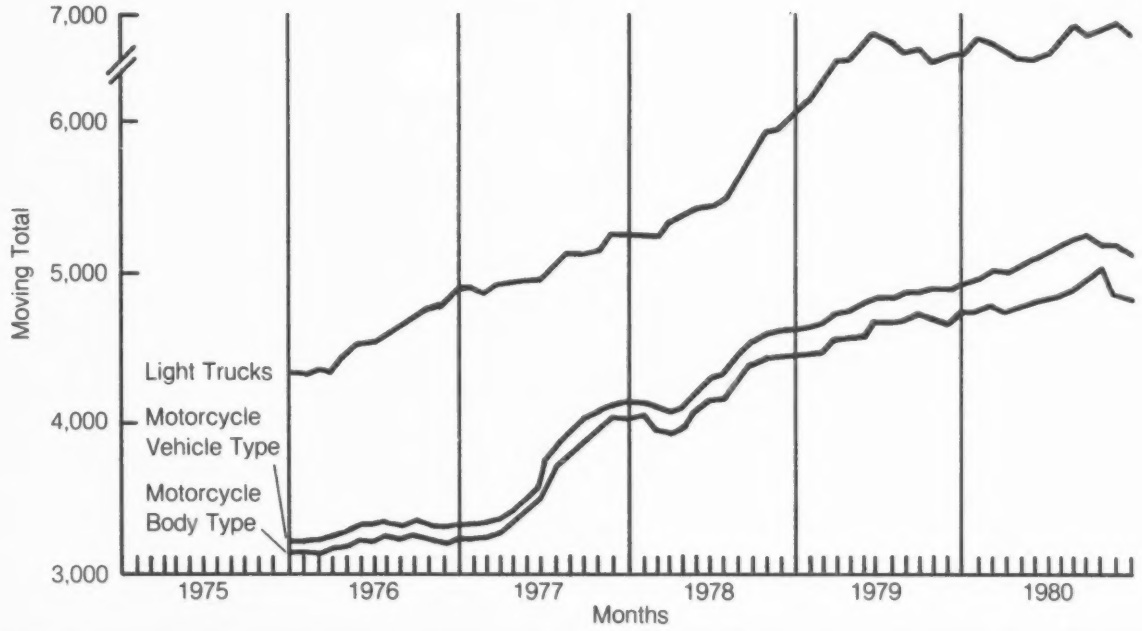

Figure 59c

12-Month Moving Totals—Occupant Fatalities by Vehicle Type (Buses, Medium Trucks, Heavy Trucks, Other Vehicle Types and Unknown)

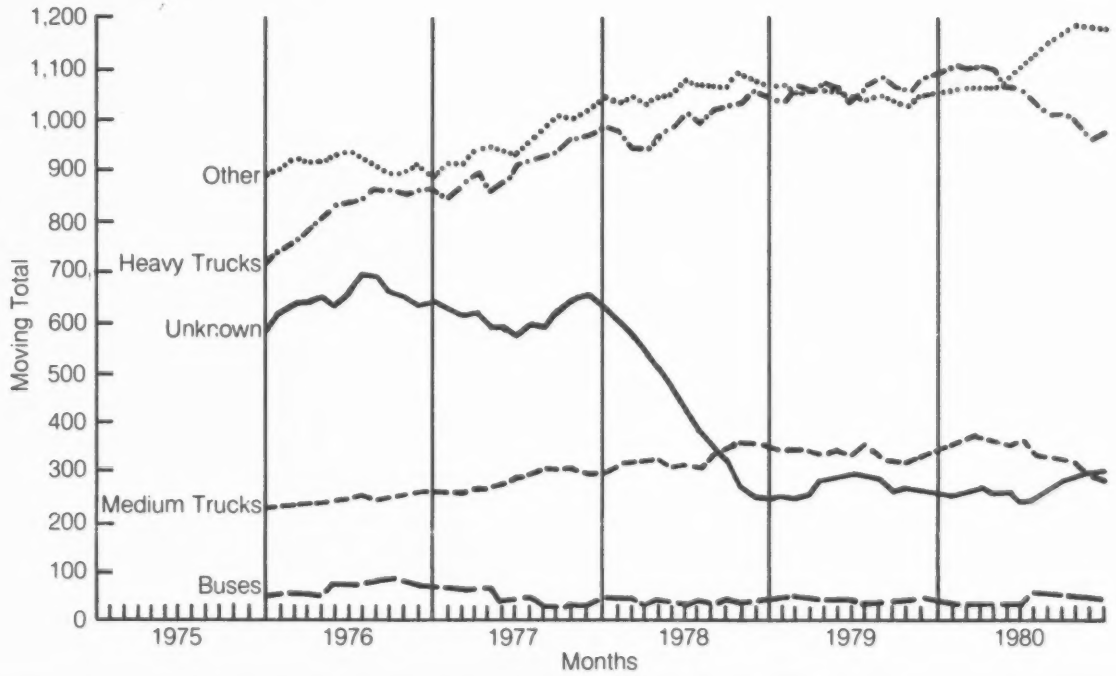

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Figure 60
12-Month Moving Total—Fatalities by First Harmful Event

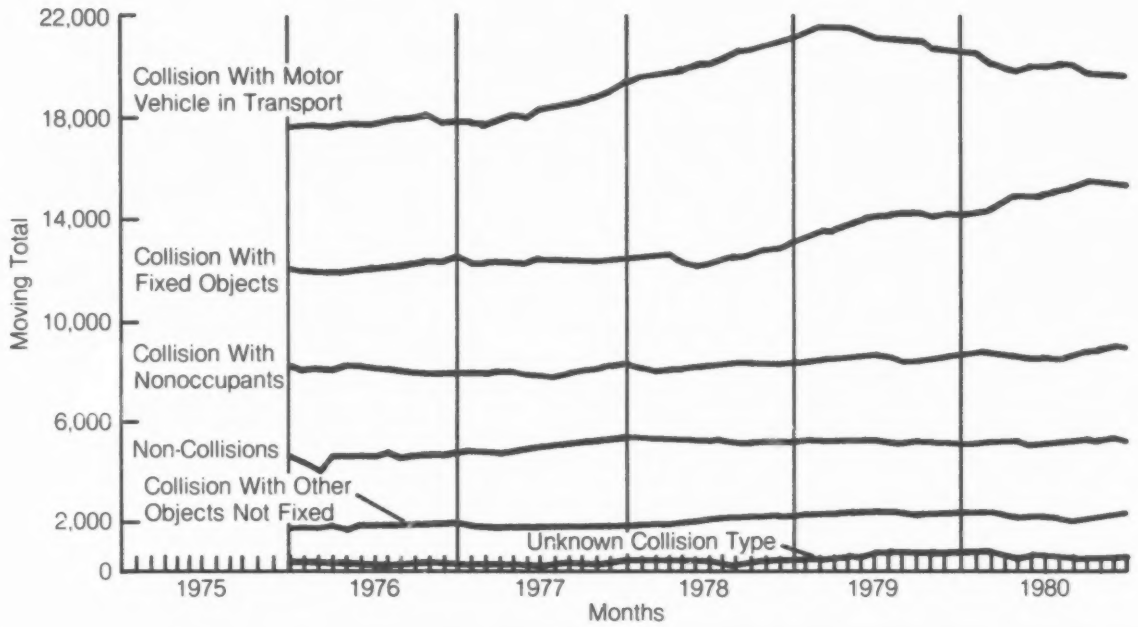
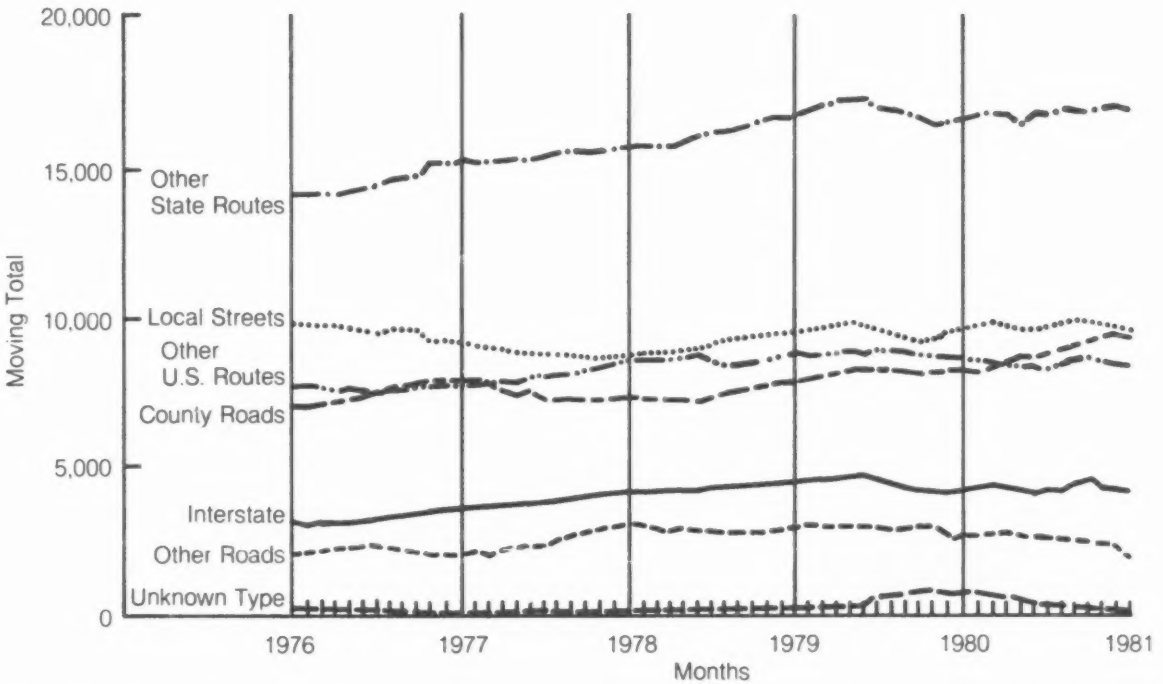


Figure 61
12-Month Moving Totals—Fatalities by Class Trafficway



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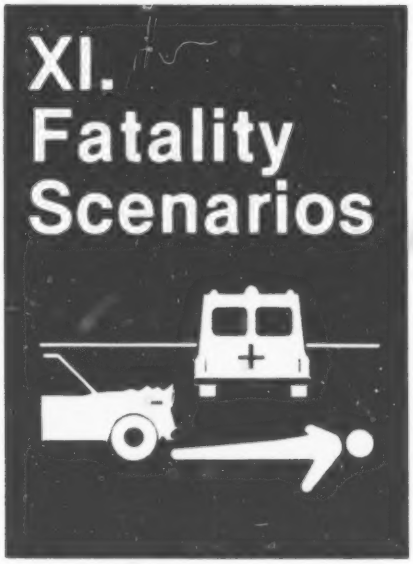
XI. Fatality Scenarios



This chapter presents scenarios in narrative form for six different aspects of fatal motor vehicle traffic accidents: pedestrian accidents, the driver in fatal accidents, vehicle passengers in fatal accidents, motorized cycle accidents, single vehicle accidents and multiple vehicle accidents. Each scenario describes the average conditions based on 1980 FARS data for the characteristics surrounding the accidents. These presentations are not intended as, and do not constitute, a rigorous scientific analysis, but are offered as an aid in grasping and better conceiving the nature and realities of various aspects of fatal motor vehicle traffic accidents. The previous chapters of this report should be consulted for further detail on any of the aspects discussed.

The Pedestrian Accident

Fatalities in 1980 motor vehicle traffic accidents included 8,071 pedestrians; loosely, people on foot—walking, working, playing, or temporarily outside of their vehicles. About the same number of pedestrians lost lives this way in 1979 (8,076). There were 7,982 fatal accidents involving pedestrians in 1979 and 7,983 in 1980. It should be noted that 91 percent of pedestrians involved in a fatal accident were killed.

It might be asked how did these people come by their fate? Clues to the answer may lie in where the accident occurred. Where were these people walking and standing?

Most do not seem to have been on strolls through the countryside, since 65.4 percent were killed in urban areas. Most of the pedestrians killed were struck where one would intuitively expect the greatest danger—on the roadway and away from intersections. This was true for 66.8 percent of urban fatalities and 79.4 percent of rural fatalities. It was also true regardless of the class trafficway. Nevertheless, in urban areas, local streets and other state routes accounted for most pedestrian fatalities while in rural areas, other state routes and county roads dominated.

The speed limit of course depends to some extent on the class trafficway; but in urban areas, most fatalities occurred in 20–45 mph zones with a tendency to the 30–35 mph range. In rural areas, clearly 55 mph roadways dominate.

While male pedestrians were definitely more involved in fatal accidents than females, there does not seem to be any particular age which is more vulnerable (and therefore none which is immune). However, it is curious to note that, in urban areas, one-third of the fatalities were males under 15 years old or over 49 years old. In rural areas, one-third of the fatalities were males from 20 through 49 years old.

Thus, it appears that a male, for whatever reason, is on the roadway of an urban local street or other state route away from an intersection when he is struck down. It is dark or dark with street lighting on a weekend (Friday-Sunday) between 8 pm and 4 am. The roadway surface is a dry blacktop.

The Vehicle Driver

There were 62,939 drivers involved in 1980 motor vehicle traffic accidents. They accounted for 58.4 percent of all fatalities. One may wonder: what is found to be true most often about these individuals? What is a driver involved in a fatal motor vehicle traffic accident like?

Envision a driver of a passenger car (possibly a light truck). The driver is a male who tends to be 16 through 35 years old (especially 16–25), but may sometimes be over 55. His license is valid and he is driving in the State in which he is licensed. He is probably driving alone. Perhaps there is one other occupant but rarely are there more than two others.

The *first* harmful event for most drivers is a collision with another motor vehicle in transport. If not this, then there will be a collision with some fixed object. Still, it is disturbing that 14 percent of drivers experience a collision with a nonoccupant. The driver's *most* harmful event tends with equal likelihood to be a non collision event such as an overturn or a collision with a fixed object such as a tree, shrubbery, or a utility pole. Again, collisions involving nonoccupants are cited for 14 percent of drivers. The driver's vehicle sustains its principal impact at

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frontal locations (11 o'clock to 1 o'clock).

The chances that the driver survives the fatal accident are only about 50/50. Most drivers are involved in fatal accidents on other state routes or local streets. A majority have their accidents in rural areas. Whether urban or rural, most drivers have accidents between 4 pm and 4 am. At the same time, the accident occurs in daylight or in the dark with no street lighting and the weather is normal—no precipitation or fog.

It tends to be a weekend (Friday, Saturday or Sunday). If the driver survives, he probably will not even be tested for alcohol. Even as a fatality, there is only a 57.4 percent chance that he is known to be tested. The result is that only 25.9 percent of the drivers like this one (male passenger car drivers from 16–35 years old), would be reported to FARS as having a positive alcohol test.

The driver is not ejected. He is also not likely to be wearing a restraint. Looking at his driving history within the last three years, one-third of the time he is likely to have had a previous speeding conviction.

The Non-Driving Occupant

Next to drivers, non-driving occupants accounted for the greatest number of fatalities (25.4 percent) in 1980 fatal motor vehicle traffic accidents.

The typical passenger is in the front seat, right side and is about equally likely to be male or female. Females in this seat tend to be 16–25 years old or over 55, while males are more likely between 16 and 25 years. It is very unlikely (7.1 percent) that more than three other persons besides the driver and the typical passenger would be sharing this trip which is usually in a passenger car. It would be between 4 pm and 4 am under normal atmospheric conditions (no bad weather). The speed limit would be 55 mph. If this is so, then the trafficway is rural and is of the class other state route, other U.S. route, or county road.

Most passengers would report the first injury and/or damage producing event as a collision with a motor vehicle in transport. It occurs with equal frequency in daylight or in the dark if dark is considered to include dark with street lighting.

A passenger has only a fair chance of surviving a fatal accident (67.5 percent). The person is not using a restraint and is not ejected. Almost all passengers could report that the vehicle they rode in was towed away after receiving disabling damage and that the State in which the accident occurred was the State in which the driver of the vehicle was licensed.

The Motorized Cycle Accident

There were 5,143 motorized cycle occupant fatalities in 5,055 fatal accidents involving 5,008 motorcycles and 185 other types of motorized cycles. What mental picture should one have of a fatal motorized cycle traffic accident? If the picture is of urban surroundings, it would be correct only slightly more than half of the time (53 percent). In urban areas, the accident occurs on a local street or possibly on a trafficway whose class is other state route. The speed limit there is between 30 and 45 mph. In rural areas, the speed limit tends to be 55 mph on other state routes or county roads. The time is between 4 pm and 4 am, usually on a Friday, Saturday or Sunday. A 16 35 year old male cyclist (usually 16–25 years old) is riding on this roadway. When it is known whether or not he is wearing a helmet, he usually is not.

When his accident occurs, it is not simply a matter of his falling from the bike or overturning—rather, there is a collision with another motor vehicle in transport. The danger does not come from a blind side or from behind, but is in front of the cyclist. Either the cyclist failed to recognize the hazard or someone failed to see the cyclist.

It doesn't appear to have been the weather. About 95 percent of motorized cycle accidents take place under normal atmospheric conditions. Almost as many take place during daylight conditions as during dark or dark but lighted conditions.

In those fatal accidents involving a motorized cycle, about 80 percent of the time at least one fatality was a cyclist. If attention is narrowed strictly to those accidents involving a motorized cycle and another motor vehicle in transport, a passenger car would be the other vehicle involved and which is associated with the greatest number of cyclist fatalities.

The Single Vehicle Accident

Almost two-thirds of the 1980 fatal motor vehicle traffic accidents, 62 percent, involved a single motor vehicle in transport. They accounted for 59.1 percent of all fatalities.

A participant of such an accident is typically a male, 15–34 years old who relates that he was riding in a passenger car. The accident takes place on a roadway which has one of the trafficway classes other state route, county

road, or local street. It will probably be a rural accident. In this case, the speed limit is around 55 mph.

It is not certain exactly what happens next, but if the possible harmful events are grouped into the four categories noncollisions, collisions with fixed objects, collisions with nonfixed objects and collisions with pedestrians or pedalcyclists, then the most frequent first harmful event would be a collision with a fixed object such as a tree, a utility pole or a guardrail, 48 percent of the time. Still it is disturbing that 29 percent of the time he would first collide with a pedestrian or pedalcyclist. In either case, the collision is frontal to the vehicle and occurs away from intersections. If a fixed object is struck, it is at the roadside. However, if the accident involves a pedestrian or pedalcyclist, it would be on the roadway.

The usual result in single vehicle fatal accidents is one fatality. This is usually a fatality to a vehicle occupant, typically the driver. Pedestrians or pedalcyclists involved in single vehicle accidents are the resulting fatality 28 percent of the time.

The Multi-Vehicle Accident

Fatal motor vehicle traffic accidents involved more than one motor vehicle in transport in 37.9 percent of 1980 cases and accounted for 40.9 percent of all 1980 fatalities. These were the multi-vehicle accidents.

Such an accident would most typically involve a passenger car. Usually, the driver is alone in the car and is a male between 15 and 49 years old. When there is more than one occupant in a passenger car, the passengers tend to be female. The driver is driving in normal weather (no precipitation) between 12 noon and 4 am. It is Friday, Saturday or Sunday. The road is a dry blacktop and away from intersections.

The overwhelmingly most likely first damage or injury producing event is a collision with another motor vehicle in transport. The other vehicle in multi-vehicle accidents involving only two vehicles is most likely a passenger car (43.0 percent) but may well be a pickup truck or a van (23.6 percent). The vehicles come together at an angle or head-on with nearly equal frequency to account for 78 percent of all multi-vehicle accidents. The initial point of impact is between the 11 o'clock and 1 o'clock position—a frontal collision.

Usually, when it is all over, two vehicles are involved. There are about 3 injuries in the accident—almost all of which are to motor vehicle occupants. There is one fatality to a motor vehicle occupant. The ratio of fatalities in the striking vehicle to those in the struck vehicle is 2.2 (in a head-on collision, both vehicles are striking). The occupant fatalities are males between 15 and 49 years old. It is a driver who is killed. Vehicle damage is severe and there is towing for removal of one or more vehicles from the scene.

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Glossary

Alcohol Involvement—an accident is considered to have had alcohol involved if there was a positive blood alcohol test result on one of the involved persons, or if the investigation indicated that drinking was involved, whether there was a supporting alcohol test or not.

Automatic (Passive) Restraint System—describes any restraint system that required no action on the part of the driver or passengers to be operable, e.g., air bags or passive belts.

Body Type—refers to the individual types of motor vehicles coded in the FARS file, as listed in Appendix B.

Buses—unless otherwise noted, includes school bus, cross country bus, transit bus, and other and unknown type bus.

Class Trafficway—is a code that identifies any land open to the public as a matter of right or custom for moving persons or property from one place to another. Classifications used are those of the Federal Highway Administration.

Driver—is an occupant of a vehicle who is in actual physical control of a motor vehicle in transport or, for an out-of-control vehicle, an occupant who was in control until control was lost.

Fatal Motor Vehicle Traffic Accident—the FARS definition of a fatal accident is one that involves a motor vehicle in transport on a trafficway and at least one person dies within 30 days of the accident as a result of the accident.

First Harmful Event—is the first event during an accident that caused injury or property damage, and is broadly grouped into noncollision, collision with an object not fixed, and collision with a fixed object.

Fixed Objects—are objects attached to the terrain or stationary objects intentionally placed for a particular purpose.

Gross Vehicle Weight (GVW)—is the maximum rated capacity of a vehicle and includes the weight of the base vehicle, all added equipment, driver and passengers, and all property loaded into or onto the vehicle.

Heavy Truck—includes the following: (1) single unit truck with GVW greater than 26,000 lbs., (2) tractor-trailer combination, (3) truck with cargo trailer(s), and (4) truck-tractor pulling no trailer. (See Appendix B.)

Initial Impact Point—represents the first impact point that produced personal injury or property damage.

Land Use—designates the accident location as urban or rural. Classifications used are those of the Federal Highway Administration.

Light Truck—includes pickups, vans, and truck based stationwagons. (See Appendix B.)

Manner of Collision—only applies to accidents in which the first harmful event was a collision between two motor vehicles in transport and is described as one of the following:

Angle—refers to those collisions which are not head-on, rear-end, rear-to-rear, or sideswipe.

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Head-on—refers to a collision where the front end of one vehicle collides with the front end of another vehicle while the two vehicles are traveling in opposite directions.

Rear-end—refers to a collision between the rear of one vehicle and the front of another vehicle.

Sideswipe—refers to a collision between two vehicles in which the sides of *both* vehicles sustained minimal engagements.

Other—refers to a collision between the rear of one vehicle and the rear of another vehicle and to unknown data in the FARS file.

Manual (Active) Restraint System—describes the type of manual restraint system used at the time of the accident as shoulder belt, lap belt, lap and shoulder belt, child safety seat or motorcycle helmet.

Medium Truck—is any single unit truck with a GVW between 10,000 and 26,000 lbs., or unknown GVW. (See Appendix B.)

Moped—a motor-driven cycle capable of speeds up to approximately 30 miles an hour, but which can also be pedaled.

Most Harmful Event—represents the event during an accident that is judged to have produced the greatest personal injury or property damage.

Motorcycle—a two- or three-wheeled motor vehicle designed to transport one or two persons. For the purposes of this report, the following are not included unless otherwise noted: motorscooters, minibikes, and mopeds. (See Appendix B.)

Motor Vehicle in Transport—is a motor vehicle within a trafficway which is in motion or on a roadway.

Noncollision—a class of accidents in which the first harmful event does not involve a collision with a fixed object or a nonfixed object. This includes overturn, fire/explosion, gas inhalation, fell from vehicle and injured in vehicle.

Nonoccupant—is any person who is not an occupant of a motor vehicle in transport and consists of the following persons: (1) pedestrians, (2) pedalcyclists, (3) occupants of a non-traffic unit vehicle (e.g., parked motor vehicle), and (4) other types such as skateboard riders, persons riding on an animal, persons riding in animal-drawn conveyance, etc.

Objects Not Fixed—are objects that are moveable or moving but are not motor vehicles, pedestrians, pedalcyclists, animals, or trains.

Occupant—is any person who is in or upon a motor vehicle in transport and includes the driver, passengers, and persons riding on the exterior of a motor vehicle (e.g., skateboard rider who is set in motion by holding on to the vehicle).

Passenger—is any occupant of a motor vehicle who is not a driver.

Passenger Car—for the purposes of this report, refers to any of the following types of motor vehicles: (1) convertible; (2) 2-door sedan, hardtop or coupe; (3) 4-door sedan or hardtop; (4) 3 or 5 door hatchback coupe; (5) automobile with pickup body; (6) stationwagon; and (7) other and unknown type passenger cars (e.g., gocarts).

Pedalcyclist—is a person on a vehicle which is operated solely by pedals.

Pedestrian—is any person not in or upon a motor vehicle or other road vehicle.

Principal Impact Point—represents the impact that is judged to have produced the greatest personal injury or property damage. Impacts resulting in personal injury take precedence over damage impacts.

Roadway—is that part of a trafficway used for motor vehicle travel or, where various classes of motor vehicle travel or are segregated, that part of a trafficway used by a particular class.

School Bus—refers to a specific type of vehicle which, independent of ownership or usage at the time of the accident, is primarily designed for transporting children to and from school.

School Bus Related Accident—any accident in which a vehicle of body type school bus or vehicle used as a school bus but not necessarily of school bus body type is directly or indirectly involved, such as an accident involving children alighting from a school bus. The vehicle itself does not have to be a traffic unit in the accident.

Special Vehicle—consists of the following types of vehicles: (1) snowmobile; (2) farm equipment other than trucks; (3) dune buggy or swamp buggy; (4) construction equipment other than trucks; (5) ambulance; (6) large limousine; (7) self-propelled camper and motor home; (8) fire truck; (9) on/off road vehicle; and (10) other special vehicle.

Trafficway—is any land way open to the public as a matter of right or custom for moving persons or property from one place to another, and it consists of the entire width between property lines or other boundaries.

Vehicle Type—refers to a series of motor vehicle body types that have been grouped together because of their design similarities. The principal vehicle types used in this report are passenger cars, motorcycles, light trucks, medium trucks and heavy trucks. Also used, but to a lesser extent are the buses and special vehicle groups. See the definitions of each of the vehicle types elsewhere in this glossary.

Appendix A

STATE CASE NO. _____

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

Form Approved
O.M.3. No. 004R-5634

FATAL ACCIDENT REPORTING SYSTEM (1980) –ACCIDENT LEVEL–

This report is authorized by the Highway Safety Act of 1966, P.L. 89-564. While the law does not require you to respond, the State is obligated under the terms of a grant of funds to defray the expense of reporting this information to cooperate in or to make the results of this survey comprehensive, accurate and timely.

CASE NUMBER STATE (GSA CODES) [1][2] **CONSECUTIVE NUMBER** [3][4][5][6] **TRANSACTION CODE** [7][8] (11–Original Submission, 12–Update or Change) **CARD NO.** [9] = 1

[7] = 1 [8] = [ ]

CITY [14] **COUNTY** [17][18][20] **DATE** [21][22][23][24][25][26] (MONTH, DAY, YEAR) = 8 0 **TIME** [27][28][29][30] (Military Time, 9999–Unknown)

Number of Vehicle Forms Submitted [31][32] **Number of Person Forms Submitted** [33][34] **Number of Vehicles Involved in Accident** [35][36] **LAND USE** [37] (1–Urban, 2–Rural, 9–Unknown)

CLASS TRAFFICWAY [38]
1–Interstate
2–Other Limited Access
3–Other U.S. Route
4–Other State Route
5–Other Major Artery
6–County Road
7–Local Street
8–Other Road
9–Unknown

TA-1 CLASS [39]
1–Interstate
2–Other Federal Aid Primary
3–Federal Aid Secondary
4–Federal Aid Urban Arterials
5–Federal Aid Urban Collectors
6–Non-Federal Aid Arterials
7–Non-Federal Aid Collectors
8–Non-Federal Aid Local
9–Unknown

SPECIAL JURISDICTION [40]
0–No Special Jurisdiction
1–National Park Service
2–Military
3–Indian Reservation
4–College/University Campus
5–Other Federal Properties
8–Other
9–Unknown

FIRST HARMFUL EVENT [41][42]

NON-COLLISION
01–Overturn
02–Fire/Explosion
03–Immersion
04–Gas Inhalation
05–Fell from Vehicle
06–Injured in Vehicle
07–Other Non-Collision

COLLISION WITH
08–Pedestrian
09–Pedalcycle
10–Railway Train
11–Animal
12–Motor Vehicle in Transport
13–Motor Vehicle in Other Roadway
14–Parked Motor Vehicle
15–Other Type Non-Motorist
16–Other Object (Not Fixed)

COLLISION WITH FIXED OBJECT
18–Building
19–Culvert/Ditch
20–Curb or Wall
21–Divider
22–Embankment
23–Fence
24–Guard Rail
25–Light Support
26–Sign Post
27–Tree/Shrubbery
28–Utility Pole
29–Other Poles/Support
30–Impact Attenuator
31–Other Fixed Object
32–Bridge or Overpass (Passing Under)
33–Bridge or Overpass (Passing Over)
99–Unknown

MANNER OF COLLISION [43]
0–Not Collision with Vehicle in Transport
1–Rear End
2–Head-On
3–Rear-to-Rear
4–Angle
5–Sideswipe, Same Direction
6–Sideswipe, Opposite Direction
9–Unknown

RELATION TO JUNCTION [44]
1–Non-Junction
2–Intersection
3–Intersection Related
4–Interchange Area
5–Driveway, Alley, Access, etc.
6–Entrance/Exit Ramp
7–Rail Grade Crossing
8–In Crossover
9–Unknown

RELATION TO ROADWAY [45]
1–On Roadway
2–Shoulder
3–Median
4–Roadside
5–Outside Right-of-Way
6–Off Roadway–Location Unknown
7–In Parking Lane
9–Unknown

ROADWAY FLOW [46]
1–Divided Highway, Median Strip
2–Divided Highway, Guardrail
3–Divided Highway, Other Barrier or Barrier Type Unknown
4–Not Physically Divided
5–One Way Trafficway
9–Unknown

NUMBER OF TRAVEL LANES [47]
Actual Value Except
7–Seven or more lanes
9–Unknown

SPEED LIMIT [48][49]
Actual Miles Per Hour Except
99–Unknown

ROADWAY ALIGNMENT [50]
1–Straight
2–Curve
9–Unknown

ROADWAY PROFILE [51]
1–Level
2–Grade
9–Unknown

ROADWAY SURFACE TYPE [52]
1–Concrete
2–Blacktop (Bituminous)
3–Brick or Block
4–Slag, Gravel or Stone
5–Dirt
8–Other
9–Unknown

ROADWAY SURFACE CONDITION [53]
1–Dry
2–Wet
3–Snow or Slush
4–Ice
5–Sand, Dirt, Oil
8–Other
9–Unknown

TRAFFIC CONTROLS [54][55]
00–No Controls
01–Flashing Traffic Signal
02–On Colors Traffic Signal
03–Stop Sign
04–Yield Sign
05–Physically Controlled RR Crossing
06–Stop Sign for RR Crossing
07–Other RR Crossing
08–School Zone Sign
09–Traffic Controls Not Functioning
10–Pedestrian Signal
98–Other
99–Unknown

LIGHT CONDITION [56]
1–Daylight
2–Dark
3–Dark but lighted
4–Dawn
5–Dusk
9–Unknown

ATMOSPHERIC CONDITIONS [57]
1–Normal
2–Rain
3–Sleet
4–Snow
5–Fog
8–Other Smog, Smoke, Blowing Sand or Dust
9–Unknown

HIT AND RUN [58]
0–No Hit and Run
1–Hit Motor Vehicle
2–Hit Non-Motorist
3–Left Scene

CONSTRUCTION/MAINTENANCE ZONE [59]
0–None
1–Construction
2–Maintenance
3–Construction or Maintenance

NOTIFICATION TIME EMS [60][61][62][63]
Military Time Except:
0000–Not Notified
9999–Unknown

ARRIVAL TIME EMS [64][65][66][67]
Military Time Except:
0000–Not Notified
9999–Unknown

SCHOOL BUS RELATED [68]
0–No
1–Yes

RELATED FACTORS [69][70][71][72][73][74]
See Instruction Manual "Related Factors–ACCIDENT LEVEL"

RAIL GRADE CROSSING IDENTIFIER [75][76][77][78][79][80][81]
(See Instruction Manual)

CARD NO. [9] = 2

ADDITIONAL STATE INFORMATION (See Instruction Manual) [14][15][16][17][18][19][20][21][22][23][24][25][26][27][28][29][30][31][32][33]

HS Form 214 (Rev. 10/79)

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STATE CASE NO _____

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

Form Approved
O.M.B. No. 004R-5634

FATAL ACCIDENT REPORTING SYSTEM (1980) –VEHICLE DRIVER LEVEL–

This report is authorized by the Highway Safety Act of 1966, P.L. 89-564. While the law does not require you to respond, the State is obligated under the terms of a grant of funds to defray the expense of reporting this information to cooperate in or to make the results of this survey comprehensive, accurate and timely.

CASE NUMBER STATE (GSA CODES) 1 2

CONSECUTIVE NUMBER 3 – 6

TRANSACTION CODE 7 8
21 – Original Submission
22 – Update or Change
2

CARD NO 9
1

VEHICLE NUMBER (Assigned by Analyst) 10 11

[redacted]

VEHICLE MAKE (See Instruction Manual) 14 15

VEHICLE MODEL (See Instruction Manual) 16 17

BODY TYPE (See Instruction Manual) 18 19

MODEL YEAR 20 21
Actual Value except
99 – Unknown

VEHICLE IDENTIFICATION NO. 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
Actual Value except
Zero Fill if no VIN
Nine Fill if Unknown

REGISTRATION STATE 39 40
GSA CODES Except:
00 – No Registration
Not Applicable
93 – Multiple State Reg., in State
94 – Multiple State Reg., Out-of-State
95 – U.S. Government Tags
96 – Military Vehicle
97 – Foreign Countries
99 – Unknown

ROLLOVER 41
0 – No Rollover
1 – First Event
2 – Subsequent Event

JACK KNIFE 42
0 – Not an Articulated Vehicle
1 – No
2 – Yes

[redacted]

TOWED TRAILING UNIT 43
0 – No
1 – Yes

SPECIAL USE 44
0 – No Special Use
1 – Taxi
2 – Vehicle Used as School Bus
3 – Vehicle Used as other Bus
4 – Military
5 – Police
6 – Ambulance
9 – Unknown

EMERGENCY USE 45
0 – No
1 – Yes

IMPACT POINT – INITIAL 46 47
00 – Non Collision
01 – 12 – Clock Points
13 – Top
14 – Undercarriage
15 – Under Ride
99 – Unknown

IMPACT POINT – PRINCIPAL 48 49
00 – Non Collision
01 – 12 – Clock Points
13 – Top
14 – Undercarriage
15 – Under Ride
99 – Unknown

EXTENT OF DEFORMATION 50
0 – None
2 – Other (Minor)
4 – Functional (Moderate)
6 – Disabling (Severe)
9 – Unknown

VEHICLE ROLE 51
0 – Non Collision
1 – Striking
2 – Struck
3 – Both
9 – Unknown

MANNER OF LEAVING SCENE 52
1 – Driven
2 – Towed Away
3 – Abandoned
9 – Unknown

FIRE OCCURRENCE 53
0 – No Fire
1 – Fire Occurred in Vehicle During Accident

NUMBER OF OCCUPANTS 54 55
Actual Value if Total Known
97 – Unknown – Only Injured Reported
99 – Unknown

RELATED FACTORS 56 57 58 59
See Instruction Manual "Related Factors – VEHICLE LEVEL"

MOST HARMFUL EVENT 60 61

NON-COLLISION
01 – Overturn
02 – Fire/Explosion
03 – Immersion
04 – Gas Inhalation
05 – Fell from Vehicle
06 – Injured in Vehicle
07 – Other Non-Collision

COLLISION WITH
08 – Pedestrian
09 – Pedalcycle
10 – Railway Train
11 – Animal
12 – Motor Vehicle in Transport
13 – Motor Vehicle in Other Roadway
14 – Parked Motor Vehicle
15 – Other Type Non-Motorist
16 – Other Object (Not Fixed)

COLLISION WITH FIXED OBJECT
18 – Building
19 – Culvert/Ditch
20 – Curb or Wall
21 – Divider
22 – Embankment
23 – Fence
24 – Guard Rail
25 – Light Support
26 – Sign Post
27 – Tree/Shrubbery
28 – Utility Pole
29 – Other Poles/Support
30 – Impact Attenuator
31 – Other Fixed Object
32 – Bridge or Overpass (Passing Under)
33 – Bridge or Overpass (Passing Over)
99 – Unknown

Card No. 9
2

DRIVER PRESENCE 14
1 – Driver Operated Vehicle
2 – Driverless
3 – Driver Left Scene
9 – Unknown

LICENSE STATE GSA CODES 15 16
Except:
94 – Military
95 – Canada
96 – Mexico
97 – Other Foreign Countries
99 – Unknown

LICENSE STATUS 17
0 – No License Required
1 – No License, License Required
2 – Licensed, but not for this type of vehicle
3 – Valid License for this type of vehicle
4 – Suspended License
5 – Revoked License
6 – Expired License
7 – Learner's Permit
9 – Unknown

COMPLIANCE WITH LICENSE RESTRICTIONS 18
0 – No Restrictions
1 – Restrictions Complied With
2 – Restrictions Not Complied With
3 – Restrictions, Compliance Unknown
9 – Unknown

DRIVER TRAINING 19
0 – None
1 – High School
2 – Commercial
3 – School Bus
4 – Traffic School
5 – Two or more Types
6 – Training, Type Unknown
9 – Unknown

VIOLATIONS CHARGED 20
0 – No
1 – Yes
2 – Pending
9 – Unknown

PREVIOUS RECORDED ACCIDENTS 21 22
Actual Value Except:
00 – None
99 – Unknown

PREVIOUS RECORDED SUSPENSIONS AND REVOCATIONS 23 24
Actual Value Except:
00 – None
99 – Unknown

PREVIOUS DWI CONVICTIONS 25 26
Actual Value Except:
00 – None
99 – Unknown

PREVIOUS SPEEDING CONVICTIONS 27 28
Actual Value Except:
00 – None
99 – Unknown

PREVIOUS OTHER HARMFUL MV CONVICTIONS 29 30
Actual Value Except:
00 – None
99 – Unknown

DATE OF LAST ACCIDENT, SUSPENSION, OR CONVICTION 31 – 34
Mo. Yr.
00 – No Record
99 – Unknown

DATE OF FIRST ACCIDENT SUSPENSION, OR CONVICTION 35 – 38
Mo. Yr.
00 – No Record
99 – Unknown

RELATED FACTORS 39 40 41 42 43 44
See Instruction Manual, "Related Factors – DRIVER LEVEL"

HS Form 214A (Rev. 10/79)

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STATE CASE NO. _____

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

Form Approved
O.M.B. No. 004R-5634

FATAL ACCIDENT REPORTING SYSTEM (1980) –PERSON LEVEL–

This report is authorized by the Highway Safety Act of 1966, P.L. 89-564. While the law does not require you to respond, the State is obligated under the terms of a grant of funds to defray the expense of reporting this information to cooperate in or to make the results of this survey comprehensive, accurate and timely.

CASE NUMBER STATE (GSA CODES) [1][2]

CONSECUTIVE NUMBER [3][4][5][6]

TRANSACTION CODE [7][8]
31–Original Submission
32–Update or Change
3

CARD NO. [9]
1

VEHICLE NUMBER (Assigned by Analyst) [10][11]
00–Non-Motorist

PERSON NUMBER (Assigned by Analyst) [12][13]

[redacted]

AGE [14][15]
Actual Value
00–Up to One Year
97–Ninety Seven Years or Older
99–Unknown

SEX [16]
1–Male
2–Female
9–Unknown

PERSON TYPE [17]
1–Driver
2–Passenger
3–Non-Motorist Pedestrian
4–Non-Motorist Pedalcyclist
5–Non-Motorist Occupant of Non Traffic Unit Vehicle
8–Non-Motorist Other or Unknown
9–Occupant: Unknown Type

SEATING POSITION [18][19]
00–Non-Motorist
01–Front Seat - Left Side (Driver's Side)
02–Front Seat - Middle
03–Front Seat - Right Side
04–Second Seat - Left Side
05–Second Seat - Middle
06–Second Seat - Right Side
07–Third Seat - Left Side
08–Third Seat - Middle
09–Third Seat - Right Side
10–Front Seat - Other
11–Second Seat - Other
12–Third Seat - Other
13–Other Passengers
14–Sleeper Section of Cab (Truck)
15–Riding on Vehicle Exterior
99–Unknown

MANUAL (ACTIVE) RESTRAINT SYSTEM – USE [20]
0–None Used - Vehicle Occupant/Not Applicable - Non Motorist
1–Shoulder Belt
2–Lap Belt
3–Lap and Shoulder Belt
4–Child Safety Seat
5–Motorcycle Helmet
8–Restraint Used – Type Unknown or Other
9–Unknown

AUTOMATIC (PASSIVE) RESTRAINT SYSTEM – FUNCTION [21]
0–Not Equipped or Non-Motorist
1–Automatic Belt In Use
2–Automatic Belt Not In Use
3–Deployed Air Bag
4–Non-deployed Air Bag
9–Unknown

NON MOTORIST LOCATION [22][23]
00–Not Applicable - Vehicle Occupant
01–Intersection - In Crosswalk
02–Intersection - Sidewalk, Median, Island, Other
03–Intersection - On Roadway
04–Intersection - Unknown
05–Non-Intersection - In Crosswalk
06–Non-Intersection - Sidewalk, Median, Island, Other
07–Non-Intersection - Bike Path
08–Non-Intersection - On Road Shoulder
09–Non-Intersection - Outside Trafficway
10–Non-Intersection - On Roadway
11–Non-Intersection - In Parking Lane
12–Non-Intersection - Unknown
99–Unknown

EJECTION [24]
0–Not Ejected
1–Totally Ejected
2–Partially Ejected
9–Unknown

EXTRICATION [25]
0–Not Extricated
1–Extricated
9–Unknown

ALCOHOL INVOLVEMENT [26]
0–No
1–Yes

ALCOHOL TEST RESULT [27][28]
Actual Value (Decimal Implied before First Digit) (0.xx)
95–Test Refused
96–None Given
97–AC Test Performed, Results Unknown
99–Unknown

INJURY SEVERITY [29]
0–O
1–C
2–B
3–A
4–K
5–Injured, Severity Unknown
6–Died Prior to Accident
9–Unknown

TAKEN TO HOSPITAL OR TREATMENT FACILITY [30]
0–No
1–Yes
9–Unknown

DEATH DATE [31][32][33][34][35][36]
000000–Not Applicable
999999–Unknown
MONTH DAY YEAR

RELATED FACTORS [37][38] [39][40] [41][42]
See Instruction Manual "Related Factors–PERSON LEVEL"

HS Form 214B (Rev. 10/79)

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Appendix B

1980 Involvement and Fatalities by Body Type (U.S. Only)

Body Type	Number of Vehicles Involved	Fatal Occupants
Passenger Cars		
Convertible	479	400
2-Door Sedan, Hardtop, Coupe	23,197	16,803
4-Door Sedan, Hardtop	9,587	6,368
Hatchback	693	592
Auto With Pickup Body	212	118
Stationwagon	2,941	1,925
Other Auto	251	25
Unknown Type Auto	1,905	1,202
Motorcycles		
Motorcycle	5,008	4,960
Moped	123	118
Other Motorcycle	45	44
Unknown Motorcycle	17	21
Buses		
School Bus	117	14
Cross Country	38	23
Transit Bus	150	6
Other Bus	14	2
Unknown Bus Type	11	1
Special Vehicles		
Snowmobile	34	32
Farm Equipment	163	108
Dune/Swamp Buggy	28	32
Construction Equipment	37	10
Ambulance	13	6
Camper/Motor Homes	106	52
Fire Truck	31	8
On/Off Road Vehicle	1,129	894
Other Special Vehicle	13	9
Light Trucks		
Pickup	9,246	5,461
Van	2,040	999
Truck Based Stationwagon	187	103
Medium Trucks		
Single Unit Truck (Low GVW)	607	165
Single Unit Truck (Med GVW)	151	30
Single Unit Truck (UNK, GVW)	334	90
Heavy Trucks		
Single Unit Truck (Hi GVW)	383	89
Two-Unit Truck	3,591	812
Multi Unit Truck	154	41
Truck-Tractor	152	34
Unknown Type Trucks		
Unknown Type Truck	76	26
Unknown Type Vehicle		
Unknown Type	430	290
Total	**63,467**	**41,913**

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